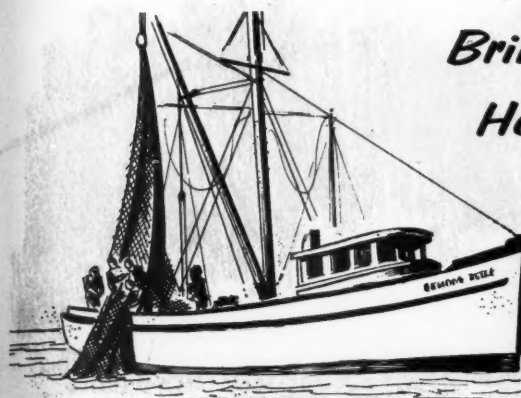


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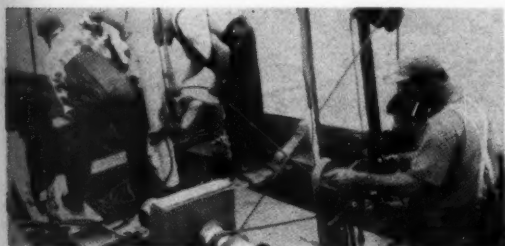
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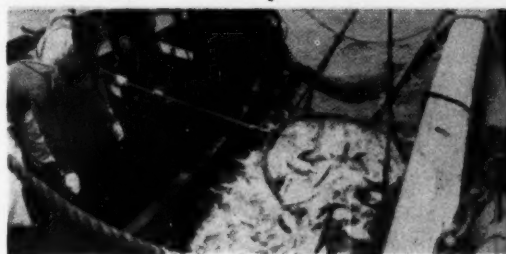
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The Engineer's Field Report

CASE HISTORY
Chevron Pressure
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COLD WEATHER STARTING is no problem aboard the Ranger, (above), 43-foot work boat operated by Allman-Hubble Tugboat Company in the Aberdeen-Hoquiam area. A small steel cartridge, charged with Chevron Priming Fuel, fires her 150 h.p. Caterpillar D-17000 power plant on the first or second turn—avoiding the usual long cranking period that exhausts batteries. Mr. Howard Hubble, skipper of the Ranger, is shown (right) inserting primer cartridge in Chevron Pressure Primer Discharger mounted on engine. "This system," Captain Hubble says, "not only saves batteries, it gets away from the dangerous



practice of holding a rag soaked in starting fluid up to the breather cap. You get a safe, controlled charge, with no danger of fire or a cracked cylinder head caused by a racing engine." The Chevron Pressure Primer System is Coast Guard approved. It starts diesels in less than 10 seconds at -50°F.

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The Lookout

Science of Sea Culture

The work of the fishery conservationist and biologist has been getting increased recognition but their contribution to the economic progress of the fisheries may not be fully appreciated.

Men have been fishing for thousands of years, but know comparatively little about fish and what effects their abundance and movements. "Sea culture" is a new science, and the restlessness of the ocean complicates the efforts of the profession.

As pointed out by the U. S. Fish & Wildlife Service, a most important fact which the fishery conservationist must learn is the "maximum sustainable yield" of each species. He must also know when and where the fish are available, and inform fishermen how to prepare for big harvests or small, as conditions warrant. "Predicting abundance" is a step in conservation because it permits more orderly harvesting and protection of the available fish.

The fishery conservationist must be able to tell the fishing industry how to make the best possible catch without damage to the resource; how to get the product to the consumer with minimum loss of fish or quality; and how to make the best industrial use of fish not used for food.

Factors affecting fish supply must be analyzed: predators; dams blocking fish runs, irrigation outlets and power turbine intakes diverting fish from their course; silt which covers spawning grounds and shellfish beds, or which ruins aquatic plants by making the water too murky for sunlight to penetrate; water fluctuations which drown out or dry up spawning areas; storms; domestic and industrial pollution; careless use of pesticides.

One of the first things a fisheries biologist wants to know about a species is its life history—when and where it spawns, conditions affecting hatching and growth, food habits, diseases, natural enemies, life span, years in which it makes its greatest growth, period of best reproduction, period of greatest natural mortality, how it reacts to the environment.

The biologist must learn about the habitat of the fish; factors which aid or hamper growth such as salinity of water, temperature, light, food supply, currents, winds, presence of mineral and other nutrients.

It will be seen that the science of sea culture has many ramifications. The fishing industry is fortunate in having Federal and State programs directed at securing knowledge which will aid in maintaining a profitable fishery resource.

NATIONAL FISHERMAN

The Fishing Industry Magazine

Vol. 40 No. 11

December 1959

CONTENTS

Proper Stowing Improves Fish Quality	7
Plan For Shrimp Market Expansion Outlined	8
"Ike and Jens" Proves Able Scallop	9
Trawl Door Spread Influences Catch	10
Louisiana Shrimping Stages Big Comeback	11
Treaty Interpretation Asked By Salmon Commission	12
Alaska Fishing Rules For 1960 Proposed	14
Lake Herring Takes Reported Good in All Areas	15
Skin Divers Could Aid Lobster Industry Says Maine Dealer	18
A Veteran Sardine Canner, John Toft, Honored	19
Fish Trawlers Should Avoid Cables in Working Areas	25
More Research Cooperation Asked By World Sardine Conference	25

REGIONS

North Atlantic	18
South Atlantic	21
Gulf of Mexico	16
Great Lakes	15
Pacific Coast	12

DEPARTMENTS

Fishery Progress	5
Equipment & Supply News	28
Boat Catches	33
Where-to-Buy Directory	36
Foreign Bailings	37
Boat & Gear Mart	38

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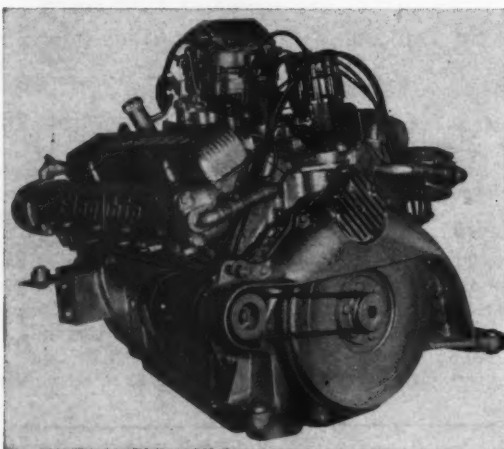
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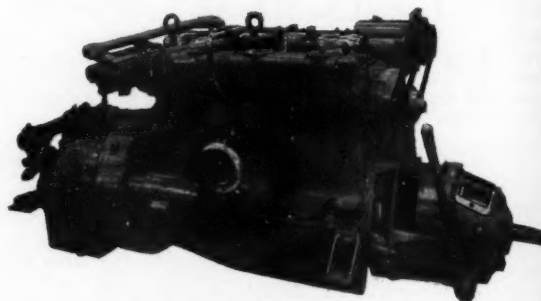
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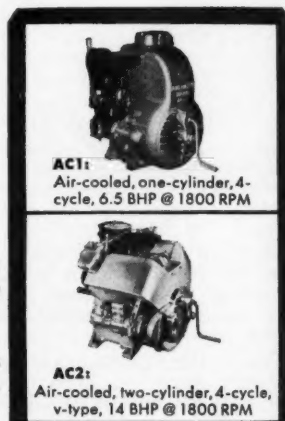
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► U. S. Landings up 11 Percent

The United States catch of fish and shellfish during the first nine months of 1959 totaled over 3.6 billion pounds—11 percent higher than for the comparable period the previous year.

Menhaden, used entirely in the manufacture of fish meal and oil, yielded a catch of 1,851 million pounds during the first nine months of 1959—a gain of 534 million pounds compared with the same period the preceding year.

There was also an upswing of 7 and 10 million pounds respectively in the landings of jack and Pacific mackerel along the Pacific Coast during the period.

In the South Atlantic and Gulf States, the catch of shrimp exceeded that of the previous year by 9 million pounds. In New England, whiting landings also recorded a rise of 9 million pounds. The catch of menhaden, Alaska herring, and industrial fish in Maine and Massachusetts used in the manufacture of meal and oil comprised 57 percent of the production during the first nine months of 1959. This was 11 percent more than was reported for the same period of the preceding year.

► Nine-Month Fillet Imports

During the first nine months of 1959, total imports of groundfish and ocean perch, classified as fillets, into the United States totaled 126.1 million pounds. Compared with the same period of 1958, this was a gain of 9.4 million pounds or 8 percent.

During September 1959, imports of groundfish and ocean perch, classified as fillets, into the United States amounted to 6.3 million pounds—a drop of 5.4 million pounds or 46 percent compared with September 1958.

► Plan 1960 NFI Convention

Syd Opler, 1960 National Fisheries Institute Convention Chairman, has been working recently with Charlie Jackson and Mal Xavier of the N.F.I. staff, laying down plans for the convention to be held at the Fontainebleau Hotel, Miami Beach, April 29-May 4, 1960.

► Frozen Cod Fillets Standards

Frozen cod fillet voluntary grade standards have been proposed by the U. S. Bureau of Commercial Fisheries. These regulations, if recommended to the Secretary of the Interior for adoption and made effective, will be the first issued by the Department prescribing voluntary grade standards for frozen cod fillets.

The proposed regulations include product and grade description; factors of quality, including evaluation of flavor, odor, appearance, size, absence of defects, and character; definitions and methods of analysis; lot certification tolerances; and score sheet.

FISHERY PROGRESS

► Halibut Meeting in February

The International Pacific Halibut Commission will hold its annual meeting in Seattle commencing on Tuesday, February 23, 1960.

The Commission has adopted a schedule of meetings with the various branches of the industry. On the basis of experience in the intervening years, the Commission has changed the original schedule to the following:

First day; All-day meeting with fishermen, vessel owners, dealers and any other interested parties for the presentation and discussion of staff findings and regulatory proposals, and for preliminary discussion of any new regulatory suggestions.

Second day; Meeting with dealers, if requested. Third day; Meeting with Conference Board of fishermen's and vessel owners' representatives. Fourth day; Meeting with Industry Advisory Group of fishermen's, vessel owners' and dealers' representatives.

► Haddock Survey Completed

The Bureau of Commercial Fisheries motor vessel *Delaware* recently completed its survey of young haddock on George and Browns Banks.

The 1958 year class, due to enter the fishery next summer and fall, was particularly abundant. A reassessment of the strength of this year class will be made on the basis of the number of one-year-old fish in the samples collected on recent cruises.

The success of this 1958 year class is particularly important to the New England groundfish industry, currently finding haddock at a lower level of abundance.

The census, conducted by biologists from the Bureau's Woods Hole Biological Laboratory showed that the 1959 year class does not appear an overly strong one. Baby fish were more abundant than last year in the South Channel; less abundant on the eastern part of Georges Bank than they were last year; and about the same as last year on Browns Bank.

► Potential Fish Flour Value

Fish flour may be the most nutritionally important, economically valuable, and politically significant fishery product of the future, according to a report from the recent meeting of the American Fisheries Advisory Committee in Newport News, Virginia.

Fish flour can be made tasteless, nearly white, and odorless by removing the last trace of fish oils.

The flour will keep nearly indefinitely as samples have been stored at room temperature for more than a year without spoiling.

Fish flour, which is more than 80 percent high quality protein, can benefit both the fishing industry and the consumer. Industry could prepare fish flour for future use during times when raw fish are in abundant supply.

Fish flour, properly dried and defatted, can be shipped and stored easily and inexpensively. In addition, it provides a low cost additive to other food preparations. The consumer would benefit because nearly two-thirds of the world's population have a need for more animal protein.

► Electro-Fishing Tests

Using water television Bureau of Commercial Fisheries scientists have completed electro-fishing tests off Cape Cod, Mass.

An electric field created by a positive electrode placed about fifty feet from a negative electrode, and located in front of a trawl net developed an effective method for stunning fish.

When the TV monitor showed fish to be in the electric field the current was switched on. While fishing at standard trawl speeds in 15 fathoms observations were made of various fish. Flounders were observed to curl up from head to tail under the influence of the electric field. A photographic record of fish behavior during electro-fishing operations was secured.

► New Fish Meal Process

A process is claimed in which fish meal is prepared from fish or fish-waste with the addition of quicklime or slaked lime.

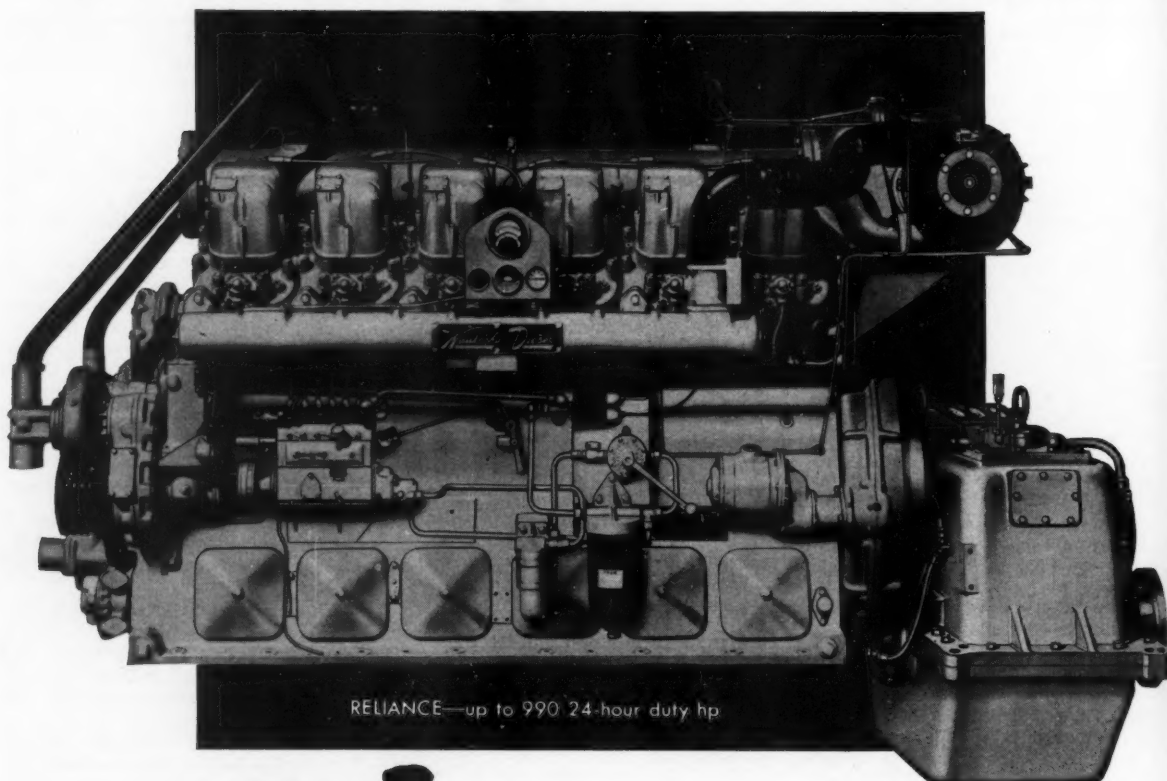
The amount added is sufficient to convert the protein material to gel, it being not more than 10 percent of the weight of the fish material used.

A batch of fish is loaded into a hopper and carried to the inlet of a mill by conveyor belt. The material then receives 5 percent by weight quicklime.

The mixture is ground down to pass through a 2-inch mesh. The resultant paste is transferred to a drying yard. When dried, it is ground to the required size.

It is claimed that the process gives a light colored, pleasant smelling product that is relatively cheap to produce.

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	DEFENDER	Normal Turbo	6 6	8½ x 8½ 8½ x 8½	2894 2894	335 horsepower @ 1215 rpm 510 horsepower @ 1215 rpm
	WANDERER	Normal Turbo	6 6	7 x 8¼ 7 x 8¼	1905 1905	240 horsepower @ 1215 rpm 315 horsepower @ 1215 rpm
	RESOLUTE	Normal Turbo	6 6	6¼ x 6½ 6¼ x 6½	1197 1197	195 horsepower @ 1600 rpm 290 horsepower @ 1600 rpm
	VIGILANT	Normal Turbo	6 6	5¼ x 6 5¼ x 6	779 779	150 horsepower @ 1800 rpm 195 horsepower @ 1800 rpm
	CUTWATER	Normal Turbo	6 6	4¼ x 5 4¼ x 5	426 426	100 horsepower @ 2000 rpm 120 horsepower @ 2000 rpm
	NAVIGATOR	Normal Turbo	6 6	4 x 4 4 x 4	302 302	65 horsepower @ 2000 rpm 85 horsepower @ 2000 rpm

Proper Stowing Improves Fish Quality

Adequate icing, temperature control, suitable hold design, help keep fish in prime condition

THE function of a fishing vessel is to catch fish and to preserve and land the catch in as fresh a condition as possible. While foods in general are perishable and delicate cargo, fish is exceptionally so; and the designers of fishing vessels are concerned with the supremely important first—and often long—link in the chain that joins catching to final consumption of the commodity. As far as the quality of the product is concerned, what is done on the fishing vessel cannot later be undone or offset.

The task of first importance in treating the catch is to chill it thoroughly as soon as possible and to keep it chilled until landing. It is, of course, impossible to express the effect of temperature on the rate of spoilage in a simple and, at the same time, accurate manner; but from bacteriological, chemical and taste panel data and "averaging out" over the period that elapses before the fish reaches the point of inedibility (taken at Torry Research Station as 15 days in ice), fish such as cod and haddock spoil about two and a half times as fast at 40°F. and about five and a half times as fast at 50°F. as at 32°F.

The white fish catch by trawlers is gutted and washed before being put below for sorting and stowage in ice; and there are no special arrangements on deck for cooling the fish. There is thus some delay before cooling can be effected but it should be reduced to the unavoidable minimum. Bacteria exhibit a "lag phase" before they multiply and, in theory, cooling should be commenced before this phase is passed. The duration of the "lag phase" for marine bacteria at 32°F. is of the order of three or four days and at 68°F. possibly not more than two or three hours.

Sufficient Supply of Ice

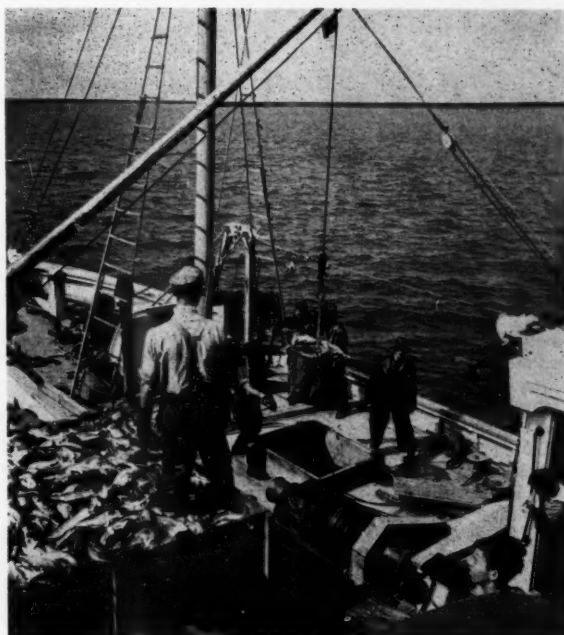
Gutted fish are typically stowed in the hold with ice on shelves, or in boxes in some of the smaller vessels. Ice must be sufficient in amount to cool the fish as quickly as possible to just above the temperature at which freezing can begin.

It is of the utmost importance to mix the ice well with the fish for rapid cooling so that ice is in contact with each fish. It is surprising how little this is appreciated by many in the fish industry. Fish is a solid non-convecting pack through which heat transfer is much slower than is often supposed. A rough practical rule would be that fish more than 2 to 3 in. thick should always be stowed in layers not more than one fish deep, between upper and lower layers of ice.

Although theoretically one part of ice is required to cool seven parts of fish from about 55° to 32°F. such cooling is impossible in practice. The admixture of ice with fish cannot be made sufficiently intimate; moreover, some ice is consumed in cooling shelves, fittings, etc., although this is relatively small in amount.

Heat Leaks

Provision also has to be made for absorption of heat entering the fishroom from outside so that this does not denude any part of the catch and heat it up. Holds vary greatly as regards heat leak, depending upon the absence or presence of insulation and mechanical refrigeration, while external climatic conditions vary widely. It is not sufficiently realized that heat leak from the sea through the sides of the ship is almost, if not as, important as that through the deckhead. Obviously ice must be deployed in the right amounts and positions to ensure that at the end of a voyage there will still be ice in contact



Unloading codfish from a North Atlantic dragger.

with linings and bulkheads and at the top of the stowage.

The correct deployment and requirement of ice can only be determined from experience with each particular vessel. Obviously the most difficult conditions are encountered in uninsulated ships; and satisfactory deployment of ice is probably easiest of all where the fishroom is simply insulated, or where insulation is combined with jacket cooling. Here temperature conditions in the hold should be at their most uniform and permit something like a standard stowage and icing procedure to be practiced in any ship, some allowance being made for climatic variations.

The use of deckhead refrigerating grids, which have been installed in insulated holds in some instances, has been found in practice to have less advantage than expected. Deckhead grids, in which the refrigerant is usually well below the temperature of melting ice, cool the air immediately under the deckhead. As the cooled air falls, all the air in the fishroom will gradually be cooled and it will cool any part of the room to which it can circulate. The chief uses of deckhead grids are thus apparently to cool the empty fishroom, to keep the ice in crisp, easily-handled condition and to cool all shelves and fittings before the fish is stowed.

Grids can also keep the air cooled above "shelved" fish, i.e. in British practice, fish merely laid on a bed of ice with no more than a sprinkling of ice on top. At the top of the pens containing "bulked" fish, i.e. fish completely stowed in ice, the pipes can merely absorb heat coming from the deckhead and can have no effect on the temperature of any fish more than a few inches down in the stowage, whether the linings, etc., are metal or not.

There is some danger of superficial drying of the "shelved" fish and also of freezing some of the fish, whether "shelved" or "bulked". This latter can readily happen since unavoidable local variations in air temperature during stowing are bound to occur in the air above the pens, and accurate thermostatic control from one single point, it not really possible. Frosting and defrosting of the coils also contribute practical problems. On balance,

(Continued on page 26)

* Abstract of material presented at the 2nd World Fishing Boat Congress, by G. A. Reay and J. M. Shewan, Department of Scientific and Industrial Research, Torry Research Station, Aberdeen, Scotland.

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Plan For Shrimp Market Expansion Outlined

Gulf & Caribbean Fisheries Institute hears suggestion for adopting "Seafood Code" to assure better quality standards, more promotion

THE twelfth annual Gulf and Caribbean Fisheries Institute Session, held November 9-13 in Nassau, Bahamas, heard National Shrimp Congress executive director, William R. Neblett, present a "A Plan to Provide a Larger Market for Shrimp in the United States," and suggest the creation of a "Seafood Code."

The Shrimp Association of the Americas, the South-eastern Fisheries Association, the National Fisheries Institute, and the National Shrimp Congress participated in the annual meeting.

The Gulf-Caribbean conference was divided into sessions and discussion periods that dealt with shrimp, industrial fish, technology and exploratory fishing, biology, and the Caribbean.

Notes on the migration and growth of pink shrimp were presented by Thomas J. Costello and Donald M. Allen of the Fish and Wildlife Service (F&WS) Coral Gables, Florida.

Keith A. Smith, chief, Maine Herring Explorations and Gear Research, F&WS, Boothbay Harbor, Maine, explained the development of an air-bubble curtain for catching sardines.

North Atlantic tuna explorations was the subject discussed by James L. Squires, Jr., chief, North Atlantic Exploratory Fishing and Gear Research, F&WS, Gloucester, Massachusetts.

Howard F. Eckles, chief, Branch of Marine Fisheries, F&WS, Washington, D. C., told the Gulf-Caribbean Session what oceanography means to commercial fisheries.

Joseph H. Manning, Department of Research and Education, Solomons, Maryland, discussed commercial uses of the Maryland soft clam digger.

The Need for a Greater Shrimp Market

Addressing the Gulf and Caribbean Fisheries Institute, William R. Neblett stressed the need for an expanded shrimp market, and a "Seafood Code".

Growth of the shrimp market is necessary because the shrimp industry has recently entered a period of increased production, while facing lower ex-vessel prices, imports, and an over-supply of shrimp boats, Neblett said.

"Shrimp products must become as familiar and as important as bread and milk are to the consumer, if the shrimp market is to increase."

Continuing his remarks, Neblett said: "The economists give us a two-pronged formula for prosperity: (1) increase the efficiency of operations, making for net savings, and (2) stabilize the market.

"Shrimp consumption per person has doubled since 1930, but the shrimp industry must keep its products out of the luxury-food class to further increase the market for shrimp.

"Individual consumption of shrimp will rise if prices remain on a level that is agreeable to the consumer, but the industry should also make sure that shrimp production is profitable for fishermen, boat owners, wholesalers, and producers.

"Regular contact between the producer and the market is important to the development of new outlets, when a change is made necessary by the flexible character of shrimp marketing", Neblett continued.

Expanding the Shrimp Market

To insure good markets and increase profits, the shrimp industry must step up advertising and promotion designed to insure fast turn over of seasonal supply and high inventories.

Neblett said the promotional work conducted by the

Shrimp Association of the Americas has increased the sale of shrimp, by making the public more aware of the product, but now additional money and effort are needed to continue the necessary advancement of the shrimp industry.

Whatever sacrifices can be made by the shrimp industry to continue the Association's work should be made, because the promotional program is a comprehensive one that helps everybody in the industry. Neblett suggested that every shrimp producer give at least twenty-five cents per box toward industry promotion.

Through the Bureau of Commercial Fisheries, the Federal Government is helping the shrimp industry by meeting with industry leaders, and by getting free radio-TV time; and through the Bureau's association with extension services, restaurant associations, school lunch supervisors, military departments, etc., Neblett said.

Exhibits and pamphlets are available for distribution at food conventions, while home economists, and other Bureau personnel, are in close contact with the public.

Representatives of the fishing industry recently recommended that the Bureau of Commercial Fisheries strengthen the government shrimp marketing program, on an emergency basis, Neblett told the Gulf and Caribbean meeting.

Neblett urged all shrimp associations to direct a similar recommendation to the Secretary of the Interior, and to emphasize the need for an expanded marketing program, so that the Department will have justification for any requests for federal funds to aid the shrimp industry.

However, Neblett continued, proof of industry self-aid must be presented before the shrimp industry can feel free to request additional government aid.

Suggests Seafood Code

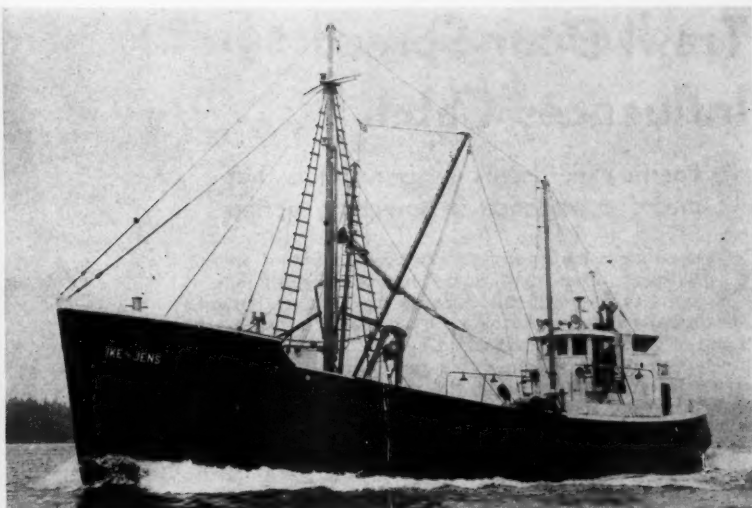
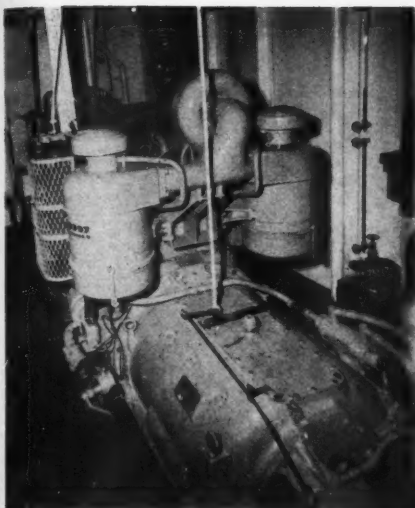
After discussing the Florida "Citrus Code", a state law developed on the suggestion of the citrus industry, Neblett suggested that a "Seafood Code" be developed to help put new life into the Gulf coast shrimp industry.

The Florida citrus industry is run by a board, or commission, composed of citrus producers and processors, and is bound by the Citrus Code, which features standards and inspections that guarantee a good, uniform product; regulation by the citrus industry; large appropriations for advertising and promotion of the citrus industry; and no cost to the state, as expenses are borne by everyone in the citrus industry.

According to Neblett, the establishment of a Seafood Code could provide a program that would secure adequate funds for well planned market promotion, and guarantee standard quality and grading for the consumer, thus assuring a more stable market for the producer.

Neblett recommended that a Seafood Code be developed by the Gulf States Commission and the Atlantic States Fisheries Commission, because compact, interstate groups are ideal for working out model legislation, and for coordinating member states in the passage of similar state legislation.

Concluding, Neblett said, "Through our trade associations we can make our joint efforts count mightily and we can work as one undivided and powerful entity to resolve these problems, with the ingenuity of American genius and the resolution and perseverance of our pioneering ancestors. Thus may we come to educate our fellow Americans to the truths of the values of shrimp as a food, and in doing so create an expanded market for our product."



New 87' scallop dragger "Ike and Jens" and her 500 hp. D397 Caterpillar Diesel, furnished by Perkins Machinery Co. Inc. She was built by Harvey F. Gamage, Shipbuilder, So. Bristol, Me., and fishes from New Bedford, Mass.

"Ike and Jens" Proves Able Scalloper

87-foot Maine-built vessel joins New Bedford fleet

A highly successful maiden trip was chalked up by the new 87-foot scallop dragger *Ike and Jens* when she landed 11,200 lbs. of scallops at New Bedford, Mass. on November 27. During her 6-day trip to the southeast part of Georges Bank, the vessel encountered some rough weather with 40-45 mph. winds, but she fished right along, 24 hours a day, without difficulty. As managing owner, Capt. Isaac Norton of Edgartown, Mass. stated: "She proved a very able sea boat and everything worked wonderfully."

Capt. Jens Isaksen of New Bedford is co-owner and skipper of the new scalloper, which had a 11-man crew on her first trip, but will carry 12 men from now on. On a compass-adjusting run prior to starting fishing, the vessel made better than 10 knots, loaded with ice and fuel. Her homeport is Edgartown.

The *Ike and Jens* was launched by Harvey F. Gamage, Shipbuilder, at South Bristol, Maine, early last month, being christened by Jane Isaksen, 12-year-old daughter of the skipper. She is of Dwight S. Simpson design, and is similar to the *Grace & Salvatore* of Gloucester, Mass.

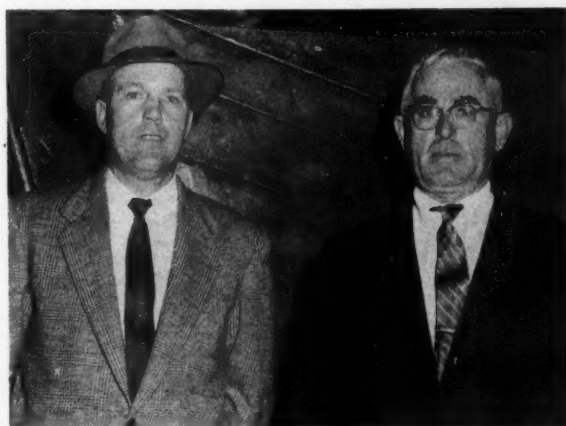
Capt. Norton has two other vessels. His 91' *Edgartown*, built by Gamage in 1955, is skippered by Capt. Magnus Thompson; while the 85' *Ursula Norton*, built in 1944, is commanded by Capt. Ole Olsen.

The *Ike and Jens* is an exceptionally well-fitted boat, with every consideration having been given to safety, crew's comfort, modern navigation, and convenient operation.

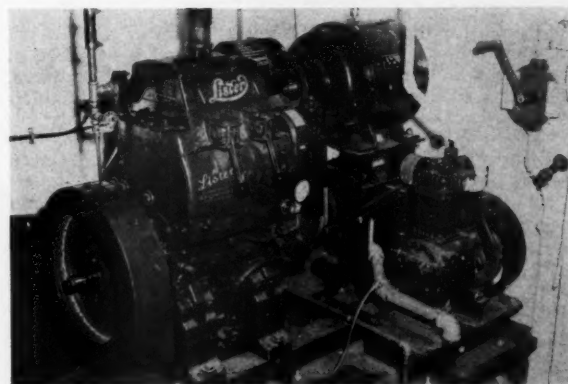
She is heavily constructed, with 3½" double sawn molded frames on 18" centers, 2½" oak planking, 2¾" pine decking, 10" sided oak keel and galvanized fastenings. The engine room and cabin trunk is of steel, sprayed with blown cork on the interior to prevent condensation. Her beam is 19'7" and draft is 10'. Tonnage is 112 gross and 82 net. International copper bottom paint and Pettit seam compound were used.

The new vessel's main engine is a D397 Caterpillar Diesel, rated 500 hp. at 1225 rpm., with 3:1 hydraulic reverse-reduction gear, sold by Perkins Machinery Co. Inc. The engine swings a 62 x 38, 5-blade Columbian propeller on a 5½" Tobin Bronze shaft with Goodrich Cutless rubber stern bearing and Hathaway flax-packed

(Continued on page 31)



Capt. Jens Isaksen, left, and Capt. Isaac Norton, owners of new scalloper "Ike and Jens".



Deseco-Lister auxiliary Diesel unit aboard new scalloper "Ike and Jens" of New Bedford, Mass. It operates 7½ kw. Kurz & Root generator, Quincy air compressor and Jabsco pump.

Trawl Door Spread Influences Catch

Pacific experiments uncover factors that create a variance in spreading action

OBTAINING a constantly productive amount of spread, between otter-trawl doors during dragging operations, is very difficult, because the distance between the doors is determined by such variable factors as the depth of the water, water action against the towing cable, the length of the towing cable in relation to the depth of the water, dragging time, the speed of the vessel, and the contact the door has with the ocean bottom.

Bureau of Commercial Fisheries scientists recorded various otter-trawl, door-spread measurements, while conducting a survey cruise in the southeastern Bering Sea, during the spring and summer of 1958.

A number of different spread measurements, taken during separate drags, stress the irregularity of trawl behavior, and point out the need for greater understanding of the factors determining the spread of trawl doors.

The spread of otter-trawl doors is determined largely by the degree of contact that the doors have with the ocean bottom, according to information obtained from a 1958 Bering Sea study. The number and uncertainty of the factors which affect trawl door action create difficulty in obtaining a consistently ideal trawl net spread.

The Bureau of Commercial Fisheries chartered the 75-foot, Seattle, Wash., schooner-type, fishing vessel, *Tordenskjold*,

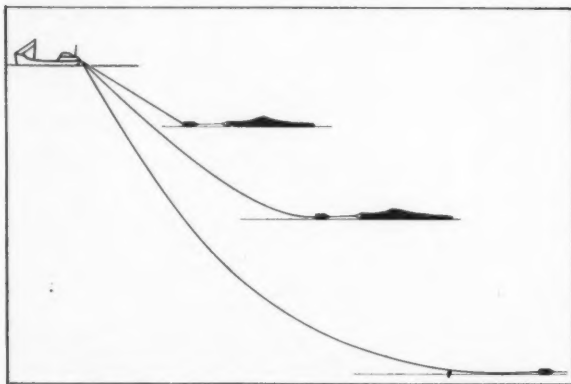


Diagram showing the pull of the cable on the trawl doors as it changes from an upward pull to a forward pull as the water depth increases.

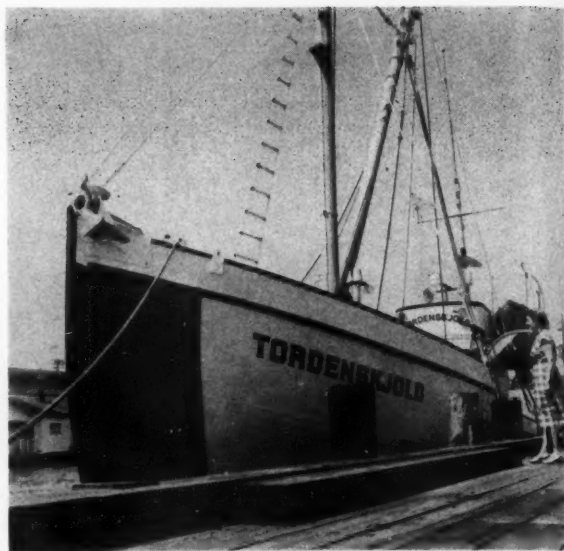
Tordenskjold, for the cruise. The vessel, powered with a 180 hp. engine has a mean draft of 9 feet and a beam of 18 feet. The trawling gear, typical of Pacific Coast trawlers, was towed from davits on each side of the stern and hauled over the starboard side. A 400-mesh Eastern otter trawl, with a 71-foot headrope and a 94-foot groundrope, was fished using 3 by 6-foot doors weighing approximately 550 pounds each. Seven fathom extensions were added forward of each wing and the extended wings were secured to the doors.

Ninety-one drags were used in the analysis. These drags were made at depths ranging from 20 to 62 fathoms and at vessel speeds from 2 to 3 knots. The total catch per drag ranged between 350 to 5,000 pounds.

Measuring Trawl-door Spread

A float was attached to each of the *Tordenskjold's* trawl doors with 100 fathoms of steel cable to show the location of the doors during trawling operations.

When the trawling gear was being towed the floats remained on the surface of the water, and the angle be-



The 75-foot, Seattle, Washington, fishing vessel on which tests of otter board spreading were carried out by Bureau of Commercial Fisheries scientists.

tween the floats and a point on the stern was measured with a sextant.

After the distance from the point on the stern to the floats was measured with a range-finder, the space between the trawl doors was determined by figuring the size of the sides of the triangle formed by the vessel and the floats.

The distance traveled by the trawl during dragging was measured with a meter on the cod end of the net, and the speed of the vessel was figured by comparing the distance covered by the trawl to the time spent in dragging.

The average spread of the trawl doors became greater as the depth of the water increased, as long as the ratio of the towing cable length to the water depth was kept at three to one. However, according to the tests, a towing-cable, water-depth ratio of three to one is too small to develop a maximum spread of trawling gear in shallow water.

The spreading of the trawl doors tends to decrease in shallow water as vessel speed is increased, but the tendency is not obvious in deep water.

The tests showed that door-spread has a weak tendency (Continued on page 30)

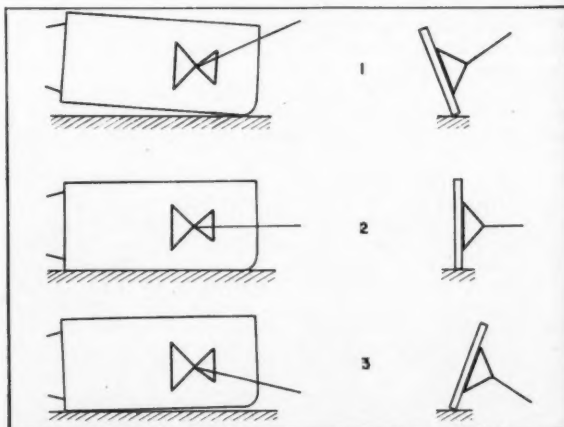


Diagram showing the tilt of otter trawl boards and the contact of the boards with the ocean bottom, progressing from shallow water (1) to deep water (3).

Louisiana Shrimping Stages Big Comeback

LOUISIANA shrimpers, during the first six months of 1959, saw a total production of 18,782,600 pounds compared with the 9,208,600 pounds for the January through June period of 1958. This represented an increase of 104 percent. At Morgan City, July proved to be the best month in many years as shrimpers delivered more than 1,046,000 pounds—more than the six preceding months combined. An Industry spokesman said recently, the gains indicate a comeback for Louisiana's shrimp industry, which five years ago dropped seriously.

For the first nine months of this year, the shrimp industry as a whole produced 11 percent more shrimp than for the comparable 1958 period. The bulk of the increase was shown by Louisiana, which registered a gain of 71 percent from January through September.

Increased production has taken place in all sections of the Louisiana industry, which is divided into four general producing areas: New Orleans and lower Mississippi; Golden Meadow; Houma, Chauvin and Dulac; Morgan City, Berwick, and Patterson.

Considering both brown and white shrimp, the 1958 tonnage was approximately twice that produced in 1957. At present it is too early to evaluate accurately the 1959 shrimp crop, as several months must necessarily lapse before statistics can be compared.

Speculating on the causes bringing about the recent recovery of the shrimp population, it is outstanding that the 1958 crop was gathered during a shorter period because fishing pressure on the nursery ground stocks during July and August was at an all time low, due to rigid enforcement of a new conservation law. White shrimp were unmolested during the period of fastest growth, and a catch 2.7 times as large was harvested with half the expense and effort.

According to Percy Viosca, Jr., marine biologist, Seafood Section, Louisiana Wild Life and Fisheries Commission, with the advent of deep sea trawlers, the Louisiana shrimp catch rose gradually from 35 million pounds yearly to double and triple that figure. After 1936, the catch fluctuated around 75 million pounds, reaching a peak of 116 million pounds during 1941. Another peak occurred in 1944 and a secondary one in 1954. Then the catch declined rapidly, reaching a low for recent years in 1957, with 38 million pounds. At that time, the industry expressed the need for greater protective management, with the result that the 1958 legislative session created a stronger shrimp law.

Of the factors blamed for the decline in white shrimp production, two are outstanding: overfishing and the drought in the Mississippi river drainage area from the summer of 1952 until early 1957. The drought caused serious salt water intrusions altering the coastal environments to the disadvantage of the white shrimp and in favor of the brown and pink species. During the drought, highly saline coastal environments formed a barrier between the Gulf spawning grounds and the areas of low salinity. Therefore, insufficient young white shrimp penetrated the barrier to reach the best nursery grounds, Viosca continued.

Shrimp Cycles in Louisiana

Shrimp lay half a million eggs during the season, deposited directly into the water where they drift with tides and currents. Within a few days after hatching, the tiny creatures have grown to a quarter inch in size and begin to move into the shallow waters of bays and bayous, the inshore nursing grounds. As they grow, they tend to seek the waters of the Gulf and by mid-summer they are of commercial size.

With the approach of cold weather the shrimp move into the deeper and warmer waters, with the result that in mid-winter only the smaller shrimp are to be found in the inner waters. As the water becomes warmer in spring, the shrimp show an increased growth rate.

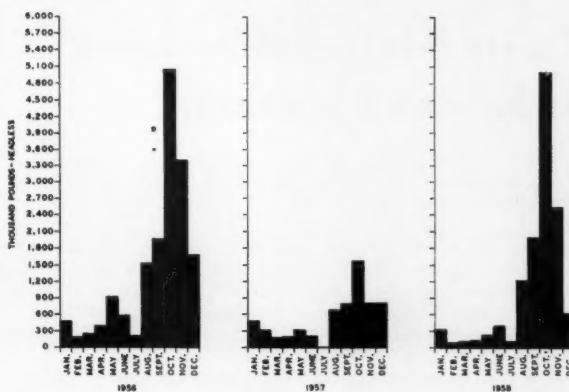


Chart showing the upsurge in the Louisiana white shrimp catch during 1958.

Spawning occurs, and the adult shrimp disappear with the appearance of the young, completing the cycle.

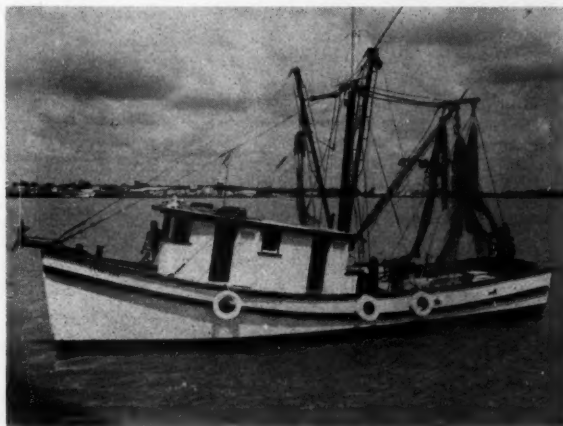
During July in Louisiana, the white shrimp shows a marked seasonal commercial scarcity. Actually, great quantities of very small shrimp without commercial value enter the inside waters as early as June and congregate in waters too shallow for trawling. As they grow and seek deeper water, the legal size limit and closed season tend to lessen against their exploitation.

When the shrimping season legally opens in the middle of August, the fast growing juvenile white shrimp are trawled heavily; at first by small nets operating in shallow water and then as they return to the sea, by successively larger nets. The peak comes in October when the larger adolescent individuals returning to the sea tend to concentrate in the channels and outside the passes.

With the advent of cold weather around November, there is a heavy seaward migration. Some of the young shrimp remain in outside waters where they hibernate in the bottom mud and growth ceases. These factors along with severe weather and an early spring, closed season bring about another low point in the white shrimp catch in February or March. As growth and activity resume, a secondary peak occurs about May.

The brown shrimp cycle has only one peak each year, due to the fact that brown shrimp adults live in deeper waters where the winter temperatures are warmer, and

(Continued on page 30)



Typical Louisiana shrimp trawler, "Leviathan", owned by Leonard Acosta of Morgan City.

PACIFIC COAST

Treaty Interpretation Asked by Salmon Commission

While United States attempts to revise the provisional treaty boundary line, limiting Japanese fishing on the high seas, seem to have been held up at the 6th annual meeting of the International Pacific Fisheries Commission in Seattle, the Commission's deliberations on this subject were not unproductive. The three delegations comprising the commission—American, Canadian and Japanese—voted to ask their respective governments for an interpretation of treaty provisions covering the boundary line and the machinery available for moving it.

If the three governments could reach agreement on the intent of the treaty on this point, it could be helpful in future negotiations by the commission, or at higher diplomatic levels, for a settlement of the dispute.

The Japanese delegation on the commission again has blocked the American proposal to move the treaty line westward to protect Alaska salmon runs that range far out into North Pacific waters.

Stocks of Bristol Bay red salmon, which have been depleted in recent years, thus remain exposed to continued exploitation by Japanese fishing fleets on the high seas.

Japan's refusal at the Seattle meeting to agree to moving the provisional boundary westward disregards convincing scientific evidence that Japanese high-seas fishing has been a major contributing factor in the decline of the Bristol Bay red-salmon resource.

The United States has been reluctant to resort to measures other than negotiation and the presentation of scientific evidence to protect its Pacific fisheries. But other measures are available and they have been seriously considered and discussed.

Congressman Tom Pelly has introduced a bill in Congress, the effect of which would be to restrict the importation of Japanese salmon and salmon products into the United States as long as Japan fails to comply with scientific fish conservation practices on the high seas.

Similar legislation has been proposed in the Senate by Alaska's Senators Bartlett and Gruening. The adoption of such restrictive legislation would deal a severe blow to the Japanese economy.

During the past two fishing seasons, there has been evidence that the Japanese fishing industry, on a voluntary basis, has limited its high seas fishing operations to some extent.

Urge Protecting Historic Rights in Eastern Bering

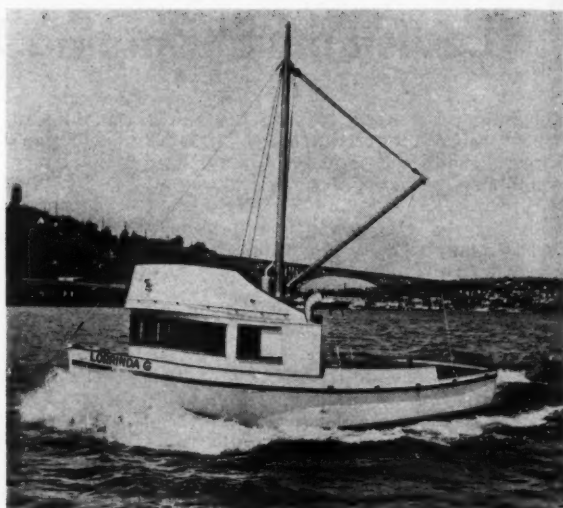
American fishing interests want the Federal Government to subsidize a small commercial fishing fleet in the eastern Bering Sea next season to block Russia and Japan from gaining "historic rights" in the area.

The proposal was made by advisers to the American section at a recent meeting of the International North Pacific Fisheries Commission. It was not presented to the commission for action, but was drafted to focus the federal government's attention on the problem.

Large Russian and Japanese trawling fleets were observed in the Bering Sea during the past season. Recent reports indicate Russian fishermen still are operating there.

The American advisers said Russia and Japan have "large-scale" operations for various kinds of Bering Sea bottom fish and shellfish, including halibut and king crab.

The advisers made these points in a resolution to the



Purse seiner, "Lorrinda G.," operating in the fleet of Pacific American Fisheries, Inc., out of Juneau, Alaska, is powered by an 87 hp. General Motors Diesel and has a top speed of 9.5 knots.

American commissioners: 1. Continuation of Russian and Japanese operations will establish historic fishing rights for them in this area. 2. Vessels of United States registry are unable presently to fish there for economic reasons. 3. But lack of American participation might indicate a lack of interest in the fishery and jeopardize America's established historic rights.

The advisers urged the subsidy in 1960 for a United States fleet of "nominal size" and said the subsidy should continue "as long as circumstances may warrant."

Urge North Pacific Fishing Cooperation

The recent International North Pacific Fisheries Commission meeting in Seattle, Wash., found representatives of Canada, the United States, Russia and Japan adopting a resolution for a halibut treaty. The treaty would "provide for the fullest exchange of scientific and biological data on fisheries of the North Pacific Ocean and the Bering Sea and for mutually acceptable regulations which will guarantee sound conservation practices."

The halibut fishery in Alaskan and North American waters now is regulated by the International Pacific Halibut Commission, but neither Russia nor Japan is a member. Both Russian and Japanese fishing fleets operated for halibut in the Bering Sea this season.

The convention also proposed a four-party treaty to more effectively carry on research work for the preservation of the salmon fisheries and other valuable resources in the North Pacific.

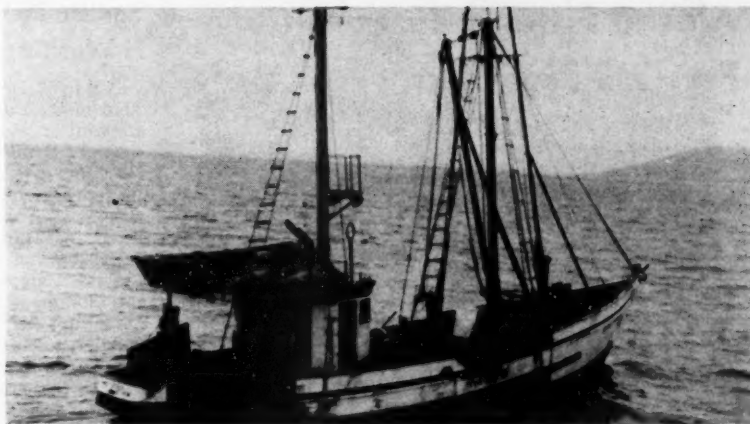
California Sardine Landings

The total landings of sardines at California ports amounted to 25,600 tons for the 1959-60 season through November 19. Landings by area were San Francisco 1,245 tons; San Pedro 14,896 tons, Monterey 9,459 tons. The ex-vessel price at San Pedro and Monterey was \$35 a ton. Last year, landings totaled 86,870 tons for the same period.

California Crab Season Opens

The California crab season opened recently but fishermen remained at their moorings due to a price dispute. The fishermen want 16 cents a pound for the crabs, allowing a half-cent discount to dealers who must haul to plants up to 150 miles away, and a full cent discount to those transporting the crabs over 150 miles. The short haul dealers have been demanding the full cent discount.

"Jennie F. Decker", 64' tuna troller and dragger owned by Trygve M. Johansen of Astoria, Ore. is powered with a 170 hp. Caterpillar engine with Snow-Nabstedt 3:1 reduction gear. Included in the equipment are a Northill anchor, Raytheon Fathometer, and Roebling's wire rope.



California Man Urges Bill of Rights For Water Development

California Fish and Game director, William E. Warne, recently called for a "bill of rights" to assure development of the State's remaining renewable natural resource, water, with consideration for the requirements of fish and wildlife.

Warne proposed that new concepts be developed along the following lines: 1. No renewable resource should be destroyed in development of or controlling of another. 2. Each manipulation of a renewable resource should be made to serve the maximum number of desires and needs. 3. Esthetic values should be recognized in terms of other than those of economic value. 4. Fish and wildlife is a beneficial use of water, and should be recognized nationally. 5. The prevention of damage to fish and wildlife resources resulting from other uses of water should be compensated or mitigated by those directly benefiting from the project services. 6. Enhancement of one resource, or improvement of the use of a resource, while developing or controlling another, should be made a part of the basic plan for the primary purpose of the development. 7. Fish and wildlife belong to all people, thus its protection and propagation and the enhancement of its environment is the responsibility of all the people.

Legislation already in the books sets the precedent for conversion of these concepts into specific laws, Warne said. In restating his first concept, Warne explained that fish should not be destroyed in controlling a stream for irrigation. "My 25 years of experience in the field of water planning convinces me that this rule is sound and is compatible with irrigation, power, flood control, domestic water supply and other uses, as well as fish and wildlife," he said.

Russians Would Double Number of Hatcheries

Russia will more than double its number of salmon hatcheries in the next seven years, a Soviet fisheries official reported recently. Dr. Michail N. Mironov told the International North Pacific Fisheries Commission at Seattle, Wash., that 38 new hatcheries are planned, to bring the annual production of salmon to 1,400,000,000. Russia has 32 hatcheries now producing 600,000,000 salmon.

Mironov's announcement was made during a dramatic intermission in the commission's annual meeting. Russia is not a member of the commission, but Mironov was invited to attend as an observer.

Mironov said he regretted that Russia had no opportunity to take part in discussions of the commission's biology and research committee during the week.

"The problems are important not only to the United States, Canada and Japan, but to the Soviet Union as well," he said.

Mironov called for more exchanges of technical information to build salmon runs in the North Pacific. He said Russia is "worried" about its declining catches in the Far East.

Mironov listed the total Russian catches of salmon since 1955 in metric tons. A metric ton is about 2,204 pounds. 1955, 172,400 tons; 1956, 160,000 tons; 1957, 150,000 tons; 1958, 73,000 tons. Catch figures are not available yet for 1959, but Mironov said the Russian harvest will be below 1958's total.

Mironov said Russia is attempting to build the runs by strict regulation of salmon fishing off its shores, closing spawning areas and stream mouths to fishing, opening new fisheries-research institutes and with the expanded hatchery program.

Oregon, Washington Schedule Columbia River Dispute Study

An interstate hassle over salmon fishing at the mouth of the Columbia River was scheduled recently in Astoria at a joint meeting of Interim Fisheries Committees of the Washington and Oregon Legislatures.

The dispute stemmed from the arrest by Oregon authorities of Washington residents for fishing in Oregon waters without Oregon licenses. Washington does not require a license for salmon fishing in the Columbia.

Milo Moore, Washington State Fisheries Director, said that while the incidents were regrettable, he felt that Oregon game officials were well within their rights.

Fish-Feed Effects Mortality Rate of Young Salmon

California biologists have found indications of a relationship between mortality of young hatchery fish and the feeding of ground-up carcasses. This potential source of mortality from the use of salmon carcasses in the diet of young fish has resulted in the discontinuance of their use for fish food.

In the taking of 25,000,000 to 30,000,000 eggs annually at Coleman, California, about 180,000 pounds of spawned-out carcasses have accumulated and present a disposal problem. Last year the carcasses were offered for sale and sold to Western California Fish Co. of San Francisco. The carcasses were used in low grade canned salmon, and for dog and cat food production.

Officials say that the carcasses, being sold to the highest bidder, are suitable for human and animal consumption despite the potential effect they may have on salmon fingerlings.

Alaska Fishing Rules For 1960 Proposed

Regulations governing Alaska's commercial salmon-fishing operations were reviewed in Juneau November 18 at a Fish and Game Board hearing on its proposed 1960 controls. The coming season will be the first over which Alaska has exercised authority.

The regulations would prohibit operation of any seine boat longer than 50 feet in any Alaska waters. Previously, bigger boats could operate west of False Pass, near the end of the Alaska peninsula. Drum seines are proclaimed illegal in all waters.

The proposals also would prohibit trawling for king crab in the Kodiak area, and restrict king crab operations in the area to pot fishing.

Gear and vessel registration for salmon fishing would be required by April 15 throughout the state, and a transfer of gear between areas would be allowed only on approval of the commissioner.

The Bristol Bay season would run throughout the year, except that gillnet restrictions would be in force during the red-salmon runs from June 27 to July 18 in the Nushagak and Naknek-Kvichak districts, from June 27 to July 22 in the Egagik district and from June 27 to July 29 in the Ugashik district.

In Southeastern Alaska, from Cape Fairweather to Dixon Entrance, a three-day fishing week will be basic for seine operations, instead of five days as before, with the season opening north of Summer Strait June 27, and in all other districts except the west coast on July 11.

More Salmon Predicted in Bristol Bay

Two forecasts of an increase in Bristol Bay salmon runs during 1960 were made recently, at a joint meeting of the Alaska Department of Fish & Game, the Fisheries Research Institute of the University of Washington, and the U. S. Bureau of Commercial Fisheries, in Juneau, Alaska.

One estimate forecast a run of 18,000,000 red salmon next year. The other predicted some 35,000,000 red salmon will return to spawn in the Far Western Alaska streams.

The major difference between the two figures, the statement said, was in "estimates for the Kvichak River. In 1956, there was an unusually large number of spawning red salmon in this system and the Bristol Bay run in 1960 will depend primarily on the success of this spawning and the proportion that return in 1960 as 4-year-old fish.

Pacific Fisheries Head is Washington Man

Aubin R. Barthold of Seattle, Wash., was elected president of the Pacific Fisheries Association at its 46th annual convention. Barthold succeeds A. W. Brindle.

T. F. Sandoz was elected first vice-president; S. M. Rosenberg, second vice-president; S. G. Tarrant, third vice-president, and Harald O. O'Neill, executive secretary.

The association heard speeches by Edward W. Allen, retiring chairman of the International North Pacific Fisheries Commission; Milton E. Brooding, chairman of the Commission's American Section, and W. C. Arnold, managing director of the Alaska Salmon Industry, Inc.

Allen told the salmon packers that their continued existence depends on the "abstention" principle set forth in the treaty that established the North Pacific Fisheries Commission.

This principle bars foreign fleets from the salmon and halibut fisheries developed in the North Pacific by the people of North America. Allen warned that rights to "abstention" were almost wiped out at the last fisheries convention in Geneva and that U. S. fishing industries must keep fighting to retain them.

Pacific Company Offers \$15,000,000 to Build Fish Facilities at Dam

The Pacific Northwest Power Co. is willing to pay an estimated \$15,000,000 for fish facilities at its proposed Mountain Sheep Dam on the Snake River. These facilities are designed to take 1,600 salmon a year beyond the dam, in their upstream migration to spawning beds on Imnaha River tributaries. It figures out nearly \$1,000 a fish, at the dam site.

This figure was cited by A. B. Martin, power-company representative, in Seattle, Wash., last month, as indicating the lengths to which the power people are prepared to go to assure the future of commercial and sports fishing in this region.

Martin adds that a more realistic appraisal probably would be about \$200 a fish, considering the region as a whole. It is estimated that about four of each five adult salmon are caught either by sport or commercial fishermen, before the final run for the spawning grounds.

Milo Bell, formerly with the Washington State Department of Fisheries, now connected with the University of Washington, is credited by the power companies with having developed facilities which will insure a future for the Imnaha salmon run.



Shown at the dock in Eureka, Cal., after a successful crab fishing cruise is the "Sharon L. Noyo", owned by Emil E. Anderson of Eureka. The 49-foot craft is powered with a Gray Marine Diesel.

GREAT LAKES

Lake Herring Takes Reported Good in All Areas

From Lake Superior, Bayfield, Wis., area and Keweenaw Bay, Mich., area commercial herring netters were getting good hauls of lake herring, while eastern Lake Superior producers were also getting impressive catches during the annual fall spawning run of this species. Much of the herring taken by the Chassel, Mich. fishing fleet were being sent to Menominee for salting and/or freezing. Chub, burbot, and other species from Lake Superior during November were generally light. This is due to the major effort being bent toward production of lake herring.

From waters of Green Bay area commercial fishermen were landing heavy catches of sheephead, while takes of herring were generally fair to good. Chub production from the bay was generally light, and yields of yellow perch were moderate.

Herring fleets operating in northern Lake Michigan, however, were making good catches of lake herring the bulk of which were coming into Menominee and Milwaukee. Port Washington commercial herring producers were reportedly getting nice catches of herring, while reports of yields of chub and perch were in good commercial quantities. Chicago, Muskegon and other southern Lake Michigan producers were reportedly making sizable hauls of lake perch, while in this area chub takes were generally fair.

In the northeastern waters of Lake Michigan, several fishing tugs from various ports such as Northport, Charlevoix, Petosky, Cheboygan, were taking commercial quantities of lake herring and sheephead and perch. Beaver Island producers were reportedly getting good perch hauls in that area.

On Lake Huron catches of chub, perch, sheephead and herring were generally moderate, except in Saginaw Bay where herring netters were making good landings according to reports from Bayport. Bullheads, carp, smelt, suckers, etc., were in generally light production from Lake Huron during November, with an occasional good haul reported. Fishermen say, however, that if lake trout were planted in the channel area of Georgian Bay within a few years the lake trout fishery in that area of former years would have a good chance for revival. They base this upon a couple of factors: Water in that area is much cleaner, and the whitefish taken in that vicinity bear very little lamprey scarring any more when compared with evidence of scarring taken a few years ago.

From Lake Erie, Michigan commercial fishermen have been fishing heavily before the annual close of the season in western Lake Erie. Catches of lake perch were the heaviest of the several species taken, and sheephead were in good production. Ohio commercial fishermen were getting good hauls in trap nets. Most of the fish taken were made up of perch, sheephead, bullheads, and carp. Erie, Pa. and New York area commercial fishermen were reportedly getting fair hauls of perch, sheephead, some smelt and whitefish, and a few lake herring.

Lake Ontario commercial netters were recently making good harvests of perch, sheephead, sunfish, bullheads, etc., and a few gill net fishermen are producing whitefish.

Stocking Upper Lakes with Trout

Chemical warfare on the dreaded sea lamprey has been so successful that researchers already are at work on a lake trout restocking program for the upper Great Lakes.

The job of restoring natural populations of commercially-important lake trout in Lake Michigan, Huron and Superior will be a tremendous one, reports the Great Lakes Fishery Commission, a U. S.-Canadian agency headquartered at the University of Michigan.



Taking perch from gill nets aboard 32' Great Lakes fishing tug "Shirley" at Marinette, Wisconsin. Left to right, Lloyd Topel, partner, and Leo Dory, owner of the boat; and Erwin Topel, owner of the tug "Dorothy". They use 2 3/4" mesh Fish Net & Twine Nylon nets and 3 1/2" Shepherd plastic floats.

Beginning July 1, 1960, the start of the new fiscal year, the Commission hopes to extend chemical work to Lake Huron and Lake Michigan tributaries. According to Norman S. Baldwin, Commission executive secretary; "We expect that chemicals can be used to check lamprey populations, though of course it is difficult to eliminate completely a creature in nature. Some control measures likely will have to be continued to keep the lamprey at a low level."

Because of progress in lamprey control, the Commission in 1957 formed a special committee on lake trout rehabilitation, supported by the Great Lakes states, Province of Ontario, U. S. and Canadian governments. Its work is coordinated by Robert Saalfeld, GLFC assistant executive secretary.

"We can start planting fish two to three years ahead of full lamprey control because the lake trout ordinarily isn't heavily attacked until it has grown to a length of 16 or 17 inches in that period," Saalfeld points out.

Potential Lake Erie Smelt Fishery Evidenced by Deep Water Tests

During a 17-day cruise of the Bureau of Commercial Fisheries chartered vessel the Active, commercial quantities of smelt were taken throughout the deeper waters of east central Lake Erie between Fairport Harbor, Ohio and Erie, Pa. The purpose of the cruise was to acquire additional information on the smelt fishery potential and attempt commercial scale production.

Forty-one trawl tows with a 50-ft., two-seam, balloon trawl, fitted with a one-inch mesh second intermediate and cod-end, produced over 52,000 lbs. of smelt and small amounts of burbot, yellow perch, and herring. The best fishing results were obtained in 11 to 13 fathom depths from Ashtabula to Conneaut, Ohio, where catch rates of smelt 8 to 20 to the pound ranged from 5,000 pounds per salable smelt.

Smaller concentrations of smelt found northeast of Erie, Pa., produced trawl catches up to 1,500 lbs. per hour.

Ohio Landings Increase 52 Percent

Landings of fish at Ohio ports on Lake Erie during August 1959, amounted to 1,200,000 lbs. This is an increase of 52% when compared with the same month of last year. Yellow perch (up 548,000 lbs.) accounted for 77% of the month's total catch. The remaining 23% was made up of 12 other species. Total landings from March 15 through August 31, 1959, totaled 14,600,000 lbs. This is a gain of 6% when compared with the same period of last year. Yellow perch led all other species with 5,300,000 lbs. Sheephead was second with 3,500,000 lbs., followed by carp with 2,700,000 lbs. These three species comprised 78% of the overall total catch.

GULF OF MEXICO



Officers of the Gulf States Marine Fisheries Commission elected at the 10th annual meeting held at Corpus Christi, Tex., in October. Left to right—Dudley Gunn, executive secretary; Hermes Gautier of Pascagoula, Miss., president; W. O. Sheppard of Ft. Myers, Fla., vice-president.

Would Give More Power To Mississippi Commission

Seafood laws presently being drawn up by the Mississippi Gulf Coast Seafood Association would place more authority in the hands of the Seafood Commission than the present laws, William Simpson, president of the association said recently.

Speaking to members of the association at a meeting of the Biloxi Port Commission, Simpson explained that by giving the seafood body such power, corrective action could be taken at any time without delay, if such action became necessary. The laws will be presented to the next legislature.

He pointed out that people in the seafood industry would not have to wait for the legislature to meet again before any serious problem which might confront the industry could be settled.

Simpson further stated that the laws presently being drawn up will be similar to those of the Louisiana Wildlife and Fisheries Commission. By having similar laws, it will be easier to work out reciprocal agreements with Louisiana. Meetings will be scheduled soon with Louisiana officials to work out fishing agreements.

Simpson also reported that Attorney General Joe Patterson had advised him that because of the tideland situation, it appears that Mississippi has a good chance of obtaining more water bottoms.

Would Take Small Mississippi Oysters

A resolution for emergency action was adopted recently by the Mississippi Seafood Commission at a meeting in Biloxi to permit small oysters to be caught off the Pass Christian tonging reefs.

The resolution was adopted following a research report which showed that an abundant growth of oysters on the reef is creating a crowded situation hurting the growth of the oysters.

Mayor Francis Hursey of Pass Christian, objected to the move and stated that conservation is the reason for the abundance of oysters on the reef.

Commission attorney, Upton Sisson, announced at the meeting that he would attempt to introduce a bill at the special session of the Mississippi Legislature in December, asking an appropriation of \$250,000 for the seafood commission.

Shell Dredging Discussed at Mississippi Seafood Meeting

The issue of renewing a contract between the Mississippi Seafood Commission and a dredging company pertaining to the commercial dredging of shells from Mississippi's dead reefs was the highlight of the commission's meeting last month.

The present contract between the Mississippi Seafood Commission and the Hartland Dredging Co., with the Bay Towing and Dredging Co. holding a sub-contract, will expire in about 18 months.

A group of fishermen, factorymen and members of the Mississippi Gulf Coast Seafood Association attended the meeting and inquired about dredging for the dead shells.

A spokesman for the group had previously said that they were opposed to dredging for the dead shells and stated that if necessary they would take out an injunction to cease such operations.

The group contended that dredging would be detrimental to the live oyster reefs in the state waters. They said that the mud stirred up during dredging operations would possibly drift on the live reefs and kill the oysters. They also contended that there might be a possibility of the dead reefs again becoming productive.

Although the Bay Towing and Dredging Co. has not dredged any dead shells from Mississippi waters in several years, under the provision of the existing contract, the seafood commission receives \$10,000 annually although no oysters are dredged.

Because the commission would receive more money if dredging operations were conducted, it has encouraged the Bay Towing & Dredging Co. to take some of the shells.

With the money realized from such dredging, the commission would have more money to operate, it was pointed out. The commission previously received \$200,000 from the dredging of dead shells.

Mississippi Group Hears Fresh Water Plan

Several possibilities of obtaining fresh water on Mississippi oyster reefs were explained to members of the Mississippi Gulf Coast Seafood Association recently at Biloxi. Johnny Wilson who has been studying the fresh water problem for the organization, said there are various ways of obtaining the water by cutting canals.

A 27-mile canal from the Mississippi River to the Pearl River would bring water to the state's oystering waters and at the same time afford an industrial waterway.

Mississippi factorymen and fishermen have agreed that fresh water is necessary for oyster production. Besides containing abundant food, fresh water also creates unfavorable living conditions for conchs, oyster predators.

William Simpson, president, reported that Senator John C. Stennis promised that he would see that the various plans were submitted to the U. S. Engineers so they might suggest which is the most feasible.

The Mississippi Gulf Coast Seafood Assoc., an organization composed of people who either earn their living directly or indirectly from the seafood industry, has been working on the possibility of fresh water as one of its projects.

Louisiana Shrimpers Reminded of White Shrimp Regulations

Shrimp trawlers operating in Louisiana's inside waters have been reminded by the Director of the Louisiana Wildlife and Fisheries Commission that they may not take white shrimp above the 68 count, and have been advised that whenever they encounter schools of small white shrimp to haul in their trawls and seek other species.

Shrimp regulations, fixed by the legislature, stipulate that from November 15 until the close of the season on December 20, there is no count on brown, or Brazilian shrimp and sea bobs. However, the white shrimp are

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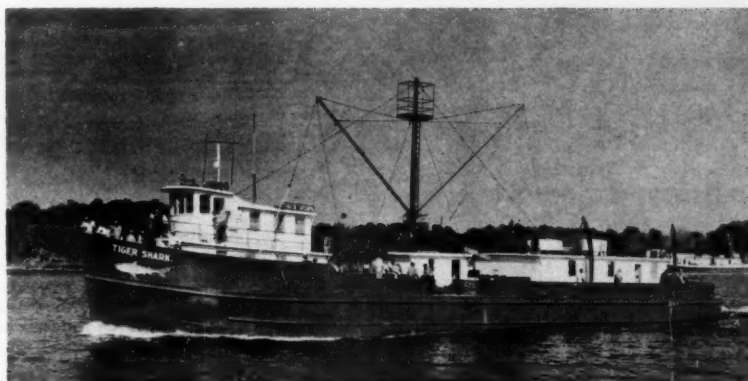
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The "Tiger Shark" menhaden boat for F. B. Walker and Sons, Inc., Pascagoula, Miss., is powered with two 6-110 General Motors Diesels totaling 1,200 hp. The wheel is a 56 x 34 4-blade Columbian. She uses Surrette batteries, Columbian cordage, a Northill anchor, and an RCA radiotelephone.



protected in their nursery grounds until they migrate to sea to develop into maturity.

There is no count on bait shrimp during open or closed seasons if they are taken with cast nets, dip nets, bait traps, or seines of 100 feet or less.

Alabama Pogy Boat Bill Killed

A bill, that would ban pogy boats from Alabama coastal waters was killed in the state legislature when the bill was not acted upon by the legislators. Considerable interest had been centered around the pogy boat bill. Bayou La Batre interests claimed the bill would prevent new industry for the town.

Gulf Landings Rise for 10 Month Period

Landings of seafoods at principal ports of the Gulf states for the first ten months of 1959 show a considerable increase in principal seafoods, over that of the same period the preceding year.

Shrimp landings (heads off) reached 83,540,000 pounds this year, an increase of 7,414,000 pounds over that in 1958. Oyster production was 403,900 barrels first ten months in 1959, an increase of 56,041 barrels. Edible finfish landed totaled 7,713,000 pounds, compared with 6,811,000 during the 1959 period, for an increase of 9.1 million.

Blue crab production from January to November, 1959, was 8,166,000, compared with 8,511,000 pounds for the first ten months of 1958.

Commercial Fishermen to Remove Drum from Laguna Madre

The Texas Game and Fish Commission now can contract commercial fishermen for the removal of drum from Willacy County portion of Laguna Madre, according to information from Director of Marine Fisheries. The operation has been permitted in Cameron County during months of December, January and February since 1957. The new statute permits similar operation in Willacy County from January through May.

Only black drum may be taken. Hours for netting are from two hours before sunrise until two hours after sunset. Only gill nets will be used, their total length including sacks not to exceed 2,400 feet.

A \$5 fee is required before permit is issued. The receiver of permit is to provide Commission with \$1,000 bond, approved by executive secretary of the Commission. Contract holders and helpers employed in fishing must have a commercial fishing license. Boats must have required license and nets must be tagged.

Fishermen interested in participating in this program should contact Director of Marine Fisheries, Texas Game and Fish Commission, Rockport, Texas, in time for necessary arrangements to be made before seasons open.

Texas Shrimp Landings up 23 Percent

Texas shrimp landings to date are approximately 23 percent higher than in the same period in 1958. Galveston and Sabine areas produced mostly white shrimp while brown shrimp comprised the bulk of the catch in other areas. White shrimp were generally taken in water 4 to 10 fathoms, while browns were found deeper in 12 to 32 fathoms. Very few vessels fished the bays, partly due to the new shrimp conservation law banning double trawls and eliminating night fishing.

Stormy weather handicapped shrimp fishing during the 30-day period ending November 15, but the fleet operating in Texas waters landed 5 million pounds of shrimp (heads off) at principal Texas ports, nearly equaling the production in the preceding 30 days.

Texas Assumes Boat Registration

The U. S. Coast Guard will turn over responsibility for registering boats on Texas waters to the Texas Department of Public Safety on April 1, 1960. The law requires boat owners to apply for registration numbers by March 1, 1960. Applications are available at offices of tax collectors, Department of Public Safety, and local law enforcement officers. The law applies to boats propelled by motors of more than 10 horsepower regardless of length of the boat.

Role of Outboards in Modernizing Latin American Fishing

Addressing the second Latin American and Caribbean Distributors Conference, conducted by Outboard Marine International S.A., in Mexico City, Mexico, recently, two fisheries experts emphasized the role of outboard motors, and the obligations of governments, in the modernization of the fishing industry.

Cecil Miles, regional fisheries officer, Food and Agriculture Organization, U.N., said a country's economy would benefit if the fishing industry received government attention equal to that devoted to research and development in other industries.

Rafael Vega Rivas, chief technical officer of Mexico's Fisheries Bureau, explained that in light of an expanding population, and the requirements of a nation's economic development, fisheries problems increase in importance each day.

Miles described a raft made of light balsa or other logs, known as the "jangada" in Brazil, the "bongo" in Ecuador, and the "catamaran" in India and Ceylon. The most striking thing about the primitive fishing vessels is that their construction and operation is almost identical in such distant places. He believes that the first stage of modernization may be, where possible, to achieve some greater degree of mobility—less time spent in getting to the fishing grounds—by adapting outboard motors to existing craft.

NORTH ATLANTIC

Skin Divers Could Aid Lobster Industry Says Maine Dealer

Edward A. Myers, president of Saltwater Farm, recently said that Maine lobstermen should welcome skin divers, rather than to try to get restrictive legislation passed against them. "Skin divers may be able to tell us more about the future of lobstering than has been possible by surface-bound marine biologists and our own guess-work," Myers said.

Lobstermen have warned that the skin diver poses a threat to the state's flourishing lobster industry, and the most strenuous objections have been voiced in York County, where a group has been formed with the intention of drafting legislation to make diving for lobsters illegal.

But Myers suggested that plans ought to be started for cooperative research groups—including both lobstermen and skin divers—to draw up a program under the guidance of the Department of Sea and Shore Fisheries.

He explained that "Progress in the lobster industry over the last century has been confined to the surface of the water—improved engines, winches and such. Even the depth sounder tells us nothing about the sea bottom except how far away it is.

"The basic design of the trap and the bait used in it—have not been changed in a century. The apparent reason they have not been changed is that nobody knows what's going on down there." Myers said the skin divers could find out what's going on below the surface, and could be enlisted in research that would result in better conservation and better catches.

Bureau Commercial Fisheries Boat Sold

The Bureau of Commercial Fisheries has announced the sale of *Albatross III*, deactivated last winter as a biological research ship, to the Island Steamship Lines, Inc. of Hyannis, Mass.

According to Joseph F. Puncochar, Director of the North Atlantic Region, Bureau of Commercial Fisheries, the money realized on this sale will be used to help defray the cost of designing a modern research vessel to replace the *Albatross III*.

Maine Sardine Council Would Aid Heart Disease Study

The suggestion by a nationally known heart specialist to institute a controlled diet on 10,000 Americans, for studying the effects of cholesterol buildup as a cause of heart attacks, is one step nearer reality due to the Maine Sardine Council offer to provide enough sardines to make the test possible.

Dr. Irvine Page of Cleveland, said "The only way to resolve whether or not a high cholesterol content in the blood is a contributing factor to 'coronary' heart attacks, 'is to place enough people on a diet specifically designed to keep the blood's concentration of cholesterol down.'" He indicated that at least 10,000 people would have to take part in the study to have any significance.

In a telegram to Dr. Page, Calvin Stinson, Chairman of the Maine Sardine Council, endorsed the proposal and offered the services of the Maine sardine packers in donating cases of sardines to any institution or group which would undertake the study.

"Tests conducted by the Massachusetts Institute of Technology, United States Bureau of Commercial Fisheries and our own laboratory in Bangor, indicate sardines

are high in the unsaturated fats," Stinson stated in his telegram to Dr. Page. "Oils in which the fish are packed also are of the unsaturated nature. This enables the sardine to be an excellent nutritive food in any scientific tests to control or lower the cholesterol level."

Massachusetts Fisheries Advisory Council Set for First of Year

An advisory council on fisheries problems will "probably be set up around the first of the year", according to Mass. Commissioner of Natural Resources Charles H. W. Foster. The Council will be formed of representatives from commercial and sport fishing interests, to help resolve conflicts between the two. The idea of such a single organization was the outgrowth of a Cape Cod meeting between representatives of the interests and Foster in July.

The major issue to be ironed out, according to the commissioner, is the handling of appointments. "We don't know if (the National Resources Department) should handle appointments, if the Governor should, or if the interests themselves should suggest names for approval."

Foster continued, "We are also looking into the scientific end of the situation, to decide what research projects should be handled by the state."

New Dragger for Mantauk

A new 45' dragger, the *Northern Dawn*, has joined the fleet at Montauk, Long Island. She was built by Lash Brothers Boatyard, Friendship, Maine, and is owned by Milligan and Hansen of Lake Grove, N. Y.

With beam of 14' and draft of 7', the boat is powered with a 165 hp. Graymarine Diesel. She will carry 30,000 pounds of fish, has accommodations for three, and is equipped with Hathaway winch. Planking and framing is oak and decking is pine.

New Lobster Firm at Vinalhaven

A new lobster firm is expected to be opened at Vinalhaven, Me. within the next few weeks, according to Christopher Roberts of Rockland, one of the firm's board of directors.

The firm, Ace Lobster Co., was formally organized at a meeting October 31 in Roberts' office, where two brothers from China, Maine, M. William Parmenter and David Parmenter, were also named as directors. M. William Parmenter is president of the new company.

Plans call for a manager for the firm to be named before the company opens for business. Business transactions will be conducted with the Down East Lobster Corp. of Hartford, Conn., with which M. William Parmenter is affiliated.

Rockland Has Good Sardine Season

After a good sardine season, Rockland, Me. factories stopped packing recently, completing more than 20 weeks of operation. The heavier runs were in the western part of the state.

The weather did less to interfere with fish this season than in many past years, although October winds may have shortened the season a little.

Controllable Pitch Power for "Atlantic"

The 110' steel trawler *Atlantic*, operated by Shawmut Fisheries, Inc., Boston, is being repowered with a new B & W Alpha Diesel with controllable pitch propeller.

The new engine is a 6-cylinder, 2-cycle, Type 406-V0, rated 420 hp. continuous at 375 rpm. with 9" bore and 15 3/4" stroke. It is fitted with a hydraulically operated, controllable pitch, 3-blade propeller of 65" diameter. Burmeister & Wain American Corp., who furnished the equipment, has an identical model on display at its Mystic, Conn. plant.

A Veteran Sardine Canner, John Toft, is Honored For Record Output, Pioneering

At the recent annual Fall Maine Sardine canners meeting, John Toft, vice-president and Portland (Me.) plant manager for R. J. Peacock Canning Co., received an award from American Can Co. in recognition of the 7,000,000-case, \$60,000,000, world sardine-production record established through his management.

Robert Kinne, Canco's Maine sales manager, and Maine Sardine Packers Association president, Roy Bailey, praised Toft as a production expert, and as a leader in developing new techniques, processes, and machines for the advancement of the sardine industry.

Toft is credited as the originator and developer of such important phases of the sardine canning as: the speed and mechanization of retort cooking; the first can washer; the present, high speed, mechanical fish and can conveyor systems; the first pump for unloading and loading fish from carrier boats which reduced a six hour operation to 55 minutes; the bar-type, self cleaning, fish-pump hose screen; and refrigeration and brine circulating systems for preserving and holding fish in the factory.

Toft was also instrumental in helping the Peacock organization to become the first fish company in the U. S. to wholly equip its fleet with ship-to-shore phones, and the first company in the nation to equip fishing boats with radar. In addition he pioneered the use of Fathometers for fishing, and the use of wrapping machines for sardine cans.

Through courage and hard work, Toft has been able to overcome fluctuating markets, uncertain fish supplies, and other factors which harass the fish-canning business.

Toft believes the Maine sardine industry has a promising future, because of growing, public recognition of the sardine's food and nutritive value; quality control; technological research; advertising and promotion; and population growth.

Important factors in Toft's success formula are a good product; hard work; vision; and a sense of good public relations with fishermen, factory workers, and customers.

Toft believes that achieving a constant and stable quality product means satisfied customers, and that profitable sales will follow.

Veteran shipping boss, Varney Matthews, has supervised the shipment of 5,000,000 cases of sardines without an error, during 32 years service with Toft, for another world record.

Among the major industry developments seen by Toft have been the start of U. S. government inspection, the launching of rigid state inspection, an industry develop-



John Toft, vice president and plant operator of the R. J. Peacock Canning Co., Portland, Me., was recently honored for his world record of 7,000,000 cases of Maine sardines packed through his supervision. Toft is shown communicating with a seining crew over a ship-to-shore telephone which he pioneered as a communications instrument for the industry.

ment program financed by a 25-cent-per-case tax on canners, and a mandatory quality grading program.

The changes were necessary for the industry's good, but the improvements were not made soon enough, Toft believes.

Toft first entered the sardine business in 1904 at his hometown, Lubec, Me., and operated the first can sealing machine used in the industry.

From 1905 to 1917, Toft was foreman of Maine's largest sardine canning plant and, after a year in the Merchant Marines, joined the Seacoast Canning Co. at Lubec as plant superintendent.

In 1928, Toft built a large plant in Portland, Me., for Seacoast Canning Co., which was taken over by R. J. Peacock Canning Co. in 1933, with Toft staying as superintendent and vice-president.

Toft dislikes the practice of processing small, marketable fish as meal, pearl essence, and other by products, because the fish would be a more valuable income to Maine as sardines.

Maine should set up a more realistic and more workable conservation plan than the present program, Toft believes.

Toft is president of the governor-appointed Maine Port Authority, is active on the South Portland Board of Industry, and is a former president of the Maine Chamber of Commerce.

Tuna Fisherman Finds Few Buyers

Enough fish, but not enough buyers yet, was a fishing captain's opinion of commercial tuna fishing in New England waters after two years of trying it. Capt. Manuel G. Phillips of Provincetown and his crew of nine in the 70-ft. seiner *Silver Mink* caught one and a half million pounds of tuna during the 1959 summer season. But with only one buyer, and that one in Maine, the fish brought four cents a pound at Provincetown.

However, Phillips said, "As soon as we can develop some canneries, I think the raw material will be here for them. And if our boats get a little larger I think we can chase the tuna down south and probably get year-round fishing."

One Gloucester vessel owner commented that if even one Gloucester cannery operator were to give assurance of buying tuna at acceptable prices there would be immediate interest among vessel owners in going tuna seining out of this port.

McInnis Heads Marine Trade Group

Walter J. McInnis of Eldredge-McInnis, Inc., Boston naval architects, recently was elected president of the New England Marine Trade Association. Frank Gardner of Wilcox-Crittenden Co., was made vice-president, Sidney Miller of Harry Miller Co. is treasurer and William King of Harrington, King & Co. is secretary. Thomas Jones of Woolsey Paint & Color Co. is chairman of the board, Roy McPoland of J. T. O'Connell, Inc. is program chairman and Henry Lamb is executive secretary.

The organization has been in operation 5 years, and has a membership of 400 among boatyards, marine equipment dealers, architects and other marine interests. One of its functions is to promote legislation which will further the orderly growth of the marine business. It encourages better safety afloat, strives for more adequate waterfront facilities and aids in bringing about boating regulations that will properly serve the needs of all concerned.

New Fish Processing Plant Sought by Pt. Judith Fishermen's Cooperative

The Point Judith Fishermen's Cooperative is trying to bring another fish processing plant to the Galilee area. Jacob J. Dykstra, cooperative president, said he has talked to a number of processing companies recently and two have shown interest in the Point Judith area. Additional talks with the companies are planned, he said.

The new plant would be in addition to the dehydrating plant at Galilee, which has been the sole market for industrial fish for the Point Judith fishing fleet for nearly ten years.

The dehydrating plant closed down on Sept. 30 for a six month period. It was reported at that time that the closing was forced by an oversupply of the homogenized condensed fish produced by the plant and used as a poultry feed supplement. Since that time the 40-boat fishing fleet has restricted its catch to edible fish and discarded industrial fish caught.

Dykstra emphasized that the cooperative's efforts to attract a new plant reflected no hard feelings between the fishermen and the present plant. "We feel the time has come when we can supply what the existing plant can use and supply another plant in addition," he said.

Dykstra said the cooperative had been "restricting" both its production and its membership for some time prior to the closing of the plant to match the plant capacity.

A record 88,000,000 pounds of industrial fish were landed at Galilee by the fleet during the first nine months of this year, exceeding the 87,788,000 pounds caught during all 12 months of 1958.

This is the first year that the trash fish plant has not purchased fish from the cooperative throughout the year, although the plant normally closes for a couple of months each year for cleaning and plant repair and maintenance.

Dykstra said the cooperative is not looking for an industry using the same process used by the present plant. A different process, with a different market for its product, would give the fishing fleet a more stable market, Dykstra indicated. He said he believes there is adequate space for an additional processing plant on state owned land at Galilee.

Two Quahog Areas Opened in R. I.

Two quahog transplant areas in Narragansett Bay, R. I., were permanently opened to shellfishermen recently, according to John L. Rego, state director of agriculture and conservation.

The areas are located off Folly's Landing, in the Chepiwanoxet section of Warwick, and a smaller section in Wickford within a line drawn from the state Fish & Game Division pier at North Cove to Calf Neck Point and Rabbit Island.

Scholarships for New Bedford Fishermen's Children Planned

Howard W. Nickerson, secretary-treasurer of the New Bedford Fishermen's Association, and Edward P. Patenaude, representative, have been instrumental in drawing up plans for a scholarship fund for children of greater New Bedford fishermen. The fund will be known as the Robert J. Swain scholarship fund, in memory of the late Association delegate. Contributions for the fund may be turned into officials of the association.

Three New Bedford Boats Change Names

The names of three boats of the New Bedford fleet were recently changed. The dragger *Carole Ann* has been renamed the *North Star*, the scalloper *B. Estelle Burke* is now known as *John Michael X*, and the former *Laura A. II* has been renamed the *Skipjack*.



Capt. Leon Headly's 30' oyster boat "Louisa" of Leeds Point, N. J. She carries 200 bushels and was recently overhauled and repowered with a 90 hp. Chrysler straight-drive engine, swinging a 16 x 12 propeller.

New Bedford Scallop Catch Tops Entire 1958 in Ten Months

During the first 10 months of this year scallop landings totaled 15,806,000 pounds valued at \$7,881,000, surpassing the total landings of the shellfish in 1958. The 1958 total was 15,253,000 pounds, valued at \$7,390,000 and was termed as one of the best years since World War II.

Poundage and value of species landed at New Bedford in October were cod, 988,000 pounds, \$89,000; haddock, 134,000 pounds, \$19,000; scrod haddock, 94,000, \$10,000; lemon sole and blackback, 378,000 pounds, \$712,000; fluke, 281,000 pounds, \$216,000; scallops, 1,522,000, \$645,000; industrial fish, 2,610,000, \$24,000.

"The Friars" to Go Lobstering

The 74-foot Gloucester, Mass., fishing vessel *The Friars* was moved from her berth at Union Wharf, Fairhaven, last month and is now in a shipyard for repairs. The vessel which survived a collision at sea in the mid-30's, and an attack by a German submarine in World War II was put out of commission in the August 1954 hurricane.

Now her owner, William Q. MacLean of 11 Huttleston Ave., Fairhaven, has decided to put her in shape for deep sea lobster fishing. The converted vessel would tie in with her owner's retail seafood firm on Union Wharf, one of the biggest lobster markets in the area.

Fairhaven Piers, Retaining Walls Okayed

F. Standish Kelley, an official of the Kelley Dock and Marine Co., Inc., Fairhaven, Mass., has announced that work will begin in the spring on a new marine railway, three finger piers and single mooring piles.

Frank C. Taylor, Inc. of Fairhaven will construct a 50,000 square-foot timber pier, a stone retaining wall and dredge and fill north of the firm's Middle St. offices. Licenses for the construction work by the two Fairhaven firms were unanimously approved by the Governor's Council November 5.

New Radar for Five Vessels

Five Boston fishing vessels are to be equipped with Kelvin-Hughes Model 14/9BR, 60 kw. radar, sold by Louis Posner Marine Radio Equipment, Inc., Boston. They include the draggers *St. Marco*, Capt. Joseph Giacalone; *Agatha & Patricia*, Capt. Vincent Tringali; *Ethelena*, Capt. Dominic Catanzaro. Also to be equipped are the steel trawlers *Wisconsin*, owned by Roen Transportation Co.; and *Michigan*, owned by Charlevoix Transit Co., for both of which Capt. Ben Larson is port-captain.

SOUTH ATLANTIC

Demand for Virginia Oysters Highest in Thirty Years

Not for 30 years has the demand for oysters been as great in Virginia as during the present season. Lower production in other areas, the Delaware Bay blight, and slighter production recently in Virginia have all contributed to the demand. Also, it is agreed that people are eating more oysters now.

A number of oysters die every year in every locality, but this year the mortalities have been a little higher than usual, in the bay areas. Scientists say that oyster deaths are considerably greater if the shellfish is not marketed before it reaches maximum growth.

Extremely cold weather followed by an unusually hot summer is thought to contribute to the mortalities this year. No unusual evidence of disease has come to light.

For November, the Hampton Roads area produced approximately 5,000 gallons of oysters daily; Lower Northern Neck produced approximately 3,500 gallons daily; and the Eastern Shore produced approximately 2,000 gallons daily.

Pound nets, haul seines and gill nets, as well as trawlers are active in the Hampton Roads area and on the Eastern Shore and fluke, striped bass and mixed fish were being caught in pound nets.

Virginia Has Good Scalloping

The Hampton Roads area of Virginia reports substantial scallop production, with this Fall's take heavier than ever before. Up to 25 scallopers from Northern ports, principally New Bedford, Mass., have been landing catches in Virginia, with the average number of regular arrivals totaling 18.

Large size scallops are being found in good supply on the Continental Shelf off Cape Henry, and with the more favorable weather in this area, it is expected that many boats will continue operating here. Isaac Fass, Inc. of Portsmouth, Va. is handling much of the scallop production, which is packaged and frozen as well as being shipped fresh.

Washington Seafood Merchants Would Move to Alexandria

Seafood merchants being dispossessed of Washington's municipal wharves met with Alexandria, Va. officials in the Mayor's office recently and agreed that it would be profitable if the seafood purveyors were to move back to the city where the area's seafood business historically started.

Mayor Bendheim declared that the meeting in his office had been a great success. The visiting merchants indicated that they would like to settle at the lower end of town, preferably around the Old Town Marina now being enlarged and with a channel deep enough to allow the fish boats coming up the river to dock conveniently.

Hampton Roads Landings Increase

Hampton Roads, Virginia, November, 1959, dragger landings totaled 1,596,900 pounds for 77 trips compared to 649,400 pounds for 45 trips in the corresponding month of 1958. The increase in total landings was the result of rises in scup of 746,900 pounds to 1,188,900 pounds; fluke 101,200 pounds to 152,400 pounds; sea bass 70,600 pounds to 135,000 pounds; mixed fish 39,100 pounds to 42,900 pounds; cod 12,400 pounds to 13,700 pounds; butterfish 5,700 pounds to 12,100 pounds; and in whiting 5,500 pounds to 16,900 pounds.



Oyster and crab dredge boat, the 56-foot "Nellie R" is owned by G. T. Elliott Inc., Hampton, Va. Her skipper is Capt. Cleveland White and power is supplied by a Caterpillar Diesel.

Hampton Roads pound net landings for November 1959, totaled 62,500 pounds compared to 60,800 pounds in November, 1958. The rise was due mainly to an increase of 5,100 pounds of sea trout; 5,000 pounds of mullet; 3,200 pounds of mixed fish; and 2,300 pounds of striped bass which offset declines in other species.

Rockfish Record Possible Next Year in Potomac, and Chesapeake Bay

Next year's fishing for rock in the Potomac River and Chesapeake Bay promises to equal and perhaps exceed the record-breaking 1958 harvest.

Dr. Romeo Mansueti, Chesapeake Biological Laboratory fisheries expert, reported that a very large crop of Potomac 1½-year-old rockfish should reach legal 12-inch minimum by next April or May. His observations have been duplicated by bay observers.

Completing its first year, a three-year research project involving scientists from the laboratory, the Virginia Fisheries Laboratory, and the U. S. Fish & Wildlife Service, is attempting to sketch the rock's life history in a typical bay estuary, and to discover how fast rock are caught, and by whom.

Scientists are checking Potomac fish concentration areas with trawls, tracking fish by releasing tagged specimens and noting where they are caught, and collecting size and abundance data.

Since last winter, 3600 Potomac rock have been tagged with oblong yellow plastic tags fastened with nylon thread through the hind part of the fish's back. Returns to date suggest that while some Potomac rock venture far afield, most tend to stay put in home waters.

Dr. L. Eugene Cronin, director Maryland Dept. Research and Education, said the Potomac project is an example of what can be accomplished through inter-state and inter-agency cooperation. Without such, a really full-scale study of the rock fishery would be years in the future. "This program is the first really adequate attempt to provide fishery management with worthwhile tools needed badly."

"If the rock's tendency to stay in home waters, such as the Potomac, is verified, a possible outcome could be that agencies could manage the river as a unit independent from the bay rock fishery."

"Future research in the larger bay will benefit considerably from experience gained in the Potomac. The two bodies of water have a remarkable resemblance."

Maryland Would Top Virginia Oyster Output in Four Years

The chairman of Maryland's Tidewater Fisheries Commission believes the state can outstrip Virginia's production of oysters in four years if it makes the effort. "We have the potential to do it", Dr. H. C. Byrd said after returning recently from a tour of Virginia oyster operations. "But we have to do two things: 1. Produce, package and market our oysters more efficiently. 2. Center our efforts on production of quality oysters."

Virginia has consistently out-produced Maryland in recent years, and Byrd thinks it boils down to one basic reason: "We've been spending too much on law enforcement that doesn't enforce and not enough on development. We've got to develop larger seed areas before we can increase our production", he said. "Virginia has been growing and planting more than two million bushels of seed every year compared to our little over 100,000 bushels. A lot of our other shells were often not properly planted or were put in the wrong places."

The key to Virginia's success has been the James River seed area—the richest oyster growing ground in the world. It annually takes more baby oysters from this river, for transplanting on private grounds or public bars, than Maryland produces in marketable oysters from all of its bars and private beds. By the time these baby oysters grow to market size in three years, they have increased the quantity in bushels many times.

Maryland, under a new fisheries commission headed by Byrd, plans to embark on a similar project next year. The Tidewater Commission has closed the Holland Straits off Somerset County to regular tonging of oysters and plans to build it up as "another James River" oyster nursery. It will be opened to tongers for limited periods to take market size oysters until other tonging bars are built up.

The 10,000-acre straits have proved to be Maryland's richest growing area, but the Commission has been putting only a limited quantity of shells there to catch the spat or oyster larvae that is generated during spawning season.

Several million bushels of shells will be planted there next spring as cultch for the baby oysters to attach to. Byrd said other seed areas also will be developed.

Maryland Oysters Selling at Good Prices

Maryland oystermen and retailers are getting good prices on the first batches harvested this season from Chesapeake Bay. Select oysters are commanding a \$5-a-bushel average for watermen docking here, and retailers are getting \$1.10 to \$1.20 a pint. Standard grades sell for around \$1. Eldon Willing, Jr. of Chance, Md. said there's not much difference in the catch this year compared with last year.

Bids Asked for Dredging Oyster Shells in Maryland Project

The Maryland Board of Public Works opened bids early this month on a project aimed at shoring up Maryland's sagging oyster production: dredging oyster shells from beneath the mud bottom of Chesapeake Bay. The board announced that at least seven firms will be invited to submit bids for the job.

State comptroller Louis L. Goldstein declared the original contract proposed by the Department of Tidewater Fisheries for dredging oyster shells—to be used as the base for new beds—was too broad.

Governor Tawes and Hooper S. Miles, treasurer, said that they could see nothing wrong with the contract proposed by Dr. H. C. Byrd, chairman of the Tidewater Fisheries Commission.

Under the contract proposed by Dr. Byrd between the State and Oyster Shell Corp. of Baltimore, the company

would have exclusive dredging rights for ten years, with an option for renewal.

Under the agreement, the dredging firm would take shells from beds buried for centuries. It would supply the need for the State for oyster cultch and its own needs for poultry feed.

The firm which gets the contract also must guarantee delivery of at least 3,340,000 bushels of shells annually—to be delivered on a 24-hour basis between June 1 and July 15.

Funds for Crab, Oyster Study Requested by Maryland

The Department of Research and Education wants more money next year to study oyster mortality and to increase its study of crab production. Included in the request for fiscal year 1961 are \$27,000 for the oyster study and \$25,000 for crab research.

Dr. L. Eugene Cronin, director of the department which operates the Chesapeake Biological Laboratory at Solomons, outlined the budget requests at a meeting of the Board of Natural Resources.

Sea Trout Studies Conducted in Florida

A study to determine growth rates and migrations of spotted sea trout off the West Coast of Florida by tagging is being conducted by the Marine Laboratory of the University of Miami. Tag returns indicate that the spotted sea trout do not travel far from the tagging areas.

A total of 3,760 sea trout have been tagged, of which 220 have been returned from fish released in the Fort Myers, Cedar Key, and Apalachicola, Fla. areas. All but 4 of those returned were caught within 30 miles of the tagging site. The longest migration of a single fish was from Apalachicola, Fla. to Grand Island, La., or about 265 miles west from the tagging area.

New Red Tide Kills Absent in Florida

The absence of new red tide fish kills in Gulf waters from Clearwater to south of Fort Myers, Fla., has brought reports that the outbreak is diminishing. The pilot of a reconnaissance plane reported recently that only scattered patches of dead fish floated offshore in parts of the 120-mile Gulf front.

Beaches south of Siesta Key to Fort Myers were reported clear except for an occasional one or two dead fish. Dr. Robert F. Hutton, biologist at the state marine laboratory in St. Petersburg said a light to medium scattering of carcasses was located in a 10-mile area just south of Sarasota. "This area probably will receive a few fish due to tidal action and southerly winds," he said.

Fisheries School Moves to Goldsboro

A fisheries school program administered by the North Carolina Department of Education now is to be headquartered in Goldsboro. The school, financed by federal appropriations has been operated out of Wilmington and reaching about 600 students along the coast.

Goldsboro was decided on because of its central location. The Department said that the average age of fishermen along the coast was 62 years and it felt that younger people should be found to take over the industry.

Three More N. C. Oyster Areas Open

Three additional oyster-producing areas on the coast were scheduled for opening for the taking of oysters, the Department of Conservation and Development announced recently.

The three areas, which were kept closed when the oyster season opened Oct. 1, are the Point of Marsh area, Carteret County, for dredging and tonging; Turnigan Bay and Back Bay, also in Carteret, for tonging only, and

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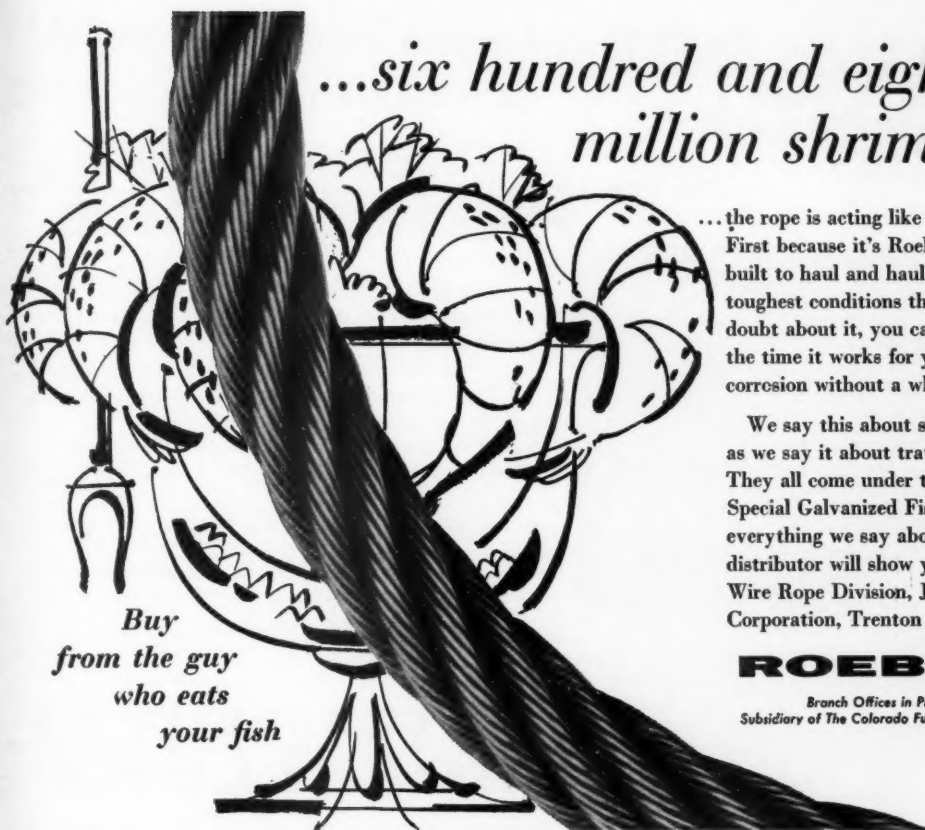
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who eats
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...six hundred and eighty-seven
million shrimp later

...the rope is acting like it's brand new. Why? First because it's Roebing. Second, because it is built to haul and haul and haul under the toughest conditions that you can name (and, no doubt about it, you can name 'em). And, all the time it works for you, it stands up to corrosion without a whimper.

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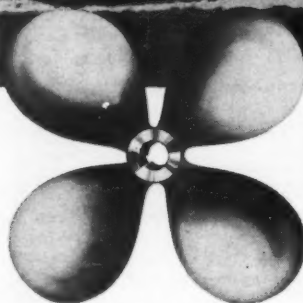
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These wheels are universally recognized as providing the finest, most economical performance, but that is only half the story. They're cast of pure, virgin metals (not one bit of scrap is used) in an alloy that makes them last as much as three times as long as wheels of ordinary bronze. When next you buy a propeller, either for a new boat or replacement, be sure it's a FEDERAL. It pays!

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FEDERAL PROPELLERS

GRAND RAPIDS 2, MICHIGAN

Bay River, Pamlico County, for dredging and tonging. Officials said oysters in the closed areas are now large enough for commercial purposes.

Mullet, Spot Cannery Planned For Brunswick County

The possibility that mullets and spots may someday rival the salmon as a canned food fish arose recently with the announcement that a new canning plant is to be built in Brunswick County, N. C.

A certificate of incorporation has already been issued by the Secretary of State's office to the Shallotte Seafood and Canning Co., Inc. A spokesman said that the principal purpose of the business would be to can and pack mullets and spots, two edible fish that are quite abundant off the Brunswick County coast in the fall and winter months. Officers are Henry E. Greene, Mrs. Roslyn Greene and Marian C. Miller, all of Lattimore, North Carolina.

The plant will be built in the Brick Landing area of Brunswick County near Shallotte and construction is expected to begin in time for the 1960 fishing season.

To Coordinate Fish Spotting Military Plane Flights

A Marine liaison officer has been assigned to the Beaufort-Morehead City, N. C. airport to coordinate fish-spotting operations within Cherry Point-controlled air space during the menhaden fishing season. The assignment followed a meeting at Cherry Point recently attended by representatives of the military services and fishing industry.

For ease in communication, each fishing company en-

gaging aerial spotters was asked to appoint a chief pilot to deal with the Marine liaison officer. Flight clearance for fish-spotters will be obtained by the Marine liaison officer over a direct telephone circuit to Cherry Point.

In addition, the traffic pattern for military bombing practice in the Point of Marsh target area has been revised to avoid conflict with fish-spotter aircraft in that area.

This is the first year that there has been any effort to coordinate fish spotting flights with aircraft based at Cherry Point. The urgent need for such coordination was dramatized in August when a fish spotting plane collided with a jet plane between Beaufort and Morehead City, killing the pilot.

Menhaden Boats Gather for the North Carolina Season Opening

Thirty-four boats were in Beaufort, N. C. recently and the number fishing out of Morehead is expected to bring the total to fifty, as Carteret prepares for the 1959 menhaden season.

Companies operating this season are Standard Products Beaufort Fisheries (only firm which operates the year round), Fish Meal Co., Acme Fish Co. (Reedsville, Va.), and in Morehead City, Wallace Fisheries, R. W. Taylor & Co., and Carteret Fish and Oil.

Three Fish Meal Co. boats seined big menhaden recently between Oregon Inlet and Hatteras. The *Princess Bay's* catch was reported at 390,000, the *Louisiana* about 500,000 and the *Ammagansett*, between 500,000 and 600,000.

Menhaden boats have two new docking places in Beaufort this year, a new dock north of the bridge being operated by Harold Simpson, and a new dock along the town waterfront built by Wesley Willis of Standard Products.

Fish Trawlers Should Avoid Cables in Working Areas

When captains of trawlers see a cable ship "fishing"—or laying cable—it would be best for all concerned if they would avoid operating in the vicinity, especially astern of the cable ship. Should gear become entangled in a cable or grapnel, a trawler faces loss of nets and otter boards. Cables often carry high voltage which could seriously injure trawlermen.

Captains and crews of trawlers can readily identify a cable ship on a "fishing" expedition. These vessels carry a signal flag of two red spheres separated by a white diamond, and, as the trawlers fish, they pass and repass marker buoys.

Cable ship crews use an assortment of grapnels to hook cables. The kind of grapnel used depends on the nature of the ocean bed, age of the cable, and depth of the water. There are over a dozen designs—some are rigid, others flexible. There are also types that will cut the cable and bring up one end. One grapnel can send signals to the ship when it reaches deep water or when it snares a cable.

The oldest type of grapnel, a five-pronged hook, is used where the ocean bed is sand or ooze. When the bottom is rocky, grapnels with removable or shielded prongs are used. An example is the Centipede Grapnel which consists of a steel shank with removable prongs. A very reliable grapnel for rocky bottoms is made up of a series of double-pronged links. A dummy link bolted in front of the prongs holds the hooked cable rigid. This type is known as the Rennie Grapnel.

When cable is brought up from great depths, the strain is often so great that it causes the cable to part and fall away from the grapnel. To prevent this the Lucas Cutting and Holding Grapnel is generally used. It has a shank with jaws on both sides. Cutting edges on one jaw slice through the cable while the other jaw holds the end.

The latest achievement for the cable ships was completion of the new transatlantic telephone cable this year. In September communications officials on both sides of the Atlantic inaugurated the first telephone cable system to link North America directly to the mainland of Europe.

More Research Cooperation Asked by World Sardine Conference

Nine general recommendations, promoting international exchanges of sardine research information, were made at the recent World Scientific Meeting on the Biology of Sardines and Related Species held in Rome, Italy.

The meeting's purpose was to rate the knowledge about sardine biology, to rate present methods of research, and to indicate how national and international action might improve sardine research programs.

The sardine meeting called for U.N., Food and Agriculture Organization leadership to promote international cooperation in dealing with sardine problems; for a sardine research bibliography; for a directory of sardine research institutions; and for strengthening the production of summaries on sardine species and other valuable fish.

The conference also requested standardization of routine research methods, focusing of attention on specialized sardine research improvements, and follow-up meetings concerning the biology of sardines and other major species.

Attention was drawn to a number of special sardine problems, and to the methods that should be used to resolve the situations, including a greater use of modern techniques, and more inclusive approaches to the problems.

The commercial importance of sardines and the fluctuation of stocks were also considered at the world sardine meeting.

Northern RADIO TELEPHONE

on Boston Dragger Ethelena

"Talk of the fleet"



Here's Capt. Dominic Catanzaro talking over his new 150-watt Northern radiotelephone on the 85 ft. dragger "Ethelena" of Boston. His radio is giving fine service and is the talk of the fleet. It has plenty of transmitting power and the receiver has no vibrator or motor, thus providing good sensitivity with noise-free operation.

Capt. Catanzaro says: "The Northern telephone gives me good, dependable service—transmitting and receiving. I've been shipmates with many telephones, and this is the best I've ever had."

Northern radiotelephones are known for reliability, rugged construction and simplicity of operation. They are custom built to stand up under the most severe conditions.

Northern N529 Transmitter and
N620 Communications Receiver on "Ethelena"

- FCC Type-Accepted • 11 Fixed Frequency Channels
- 2 to 18 megacycles frequency range
- 150-watt input; 95-watt output • Available for 32-115 volt DC or 115 volt AC power supply

"Northern" telephones are backed by 30 years of electronic know-how. They are thoroughly proven in fishing service, and are known for long life and dependable operation.

Northern makes a complete line of quality radiotelephones, designed for durability. Other models include the N518-S, 85-watt transmitter. Write for specifications.

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... with her dependable GM Diesel power, installed for owner Capt. Shirley G. Mitchell, Jr. of Fairhaven, Mass. two years ago by Robert A. Mitchell Co.

This sturdy 75' dragger uses a trouble-free GM Model 6-110 which provides 220 continuous H.P. at 1800 R.P.M. with 4.5/1 Allison (GM) reverse-reduction gear.

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Proper Stowing Improves Fish Quality

(Continued from page 7)

it seems clear that deckhead grids offer no proved advantage in preserving the cargo as compared with the use of plenty of ice. The jacketed hold represents a much more sensible approach to this whole problem even than extended grids over the sides and bulkheads. Unless the jacket, however, is hermetically sealed off from the fishroom, desiccation of "shelved" fish may still occur.

Mechanical Refrigeration

Quite apart from the dangers of slow and partial freezing of some of the fish in a mechanically refrigerated fishroom, some experimental results pose the question whether the quality of fish is not better if the air temperature in the hold is kept somewhat above 32°F. or if, more generally, the heat flow into the ice—apart from that coming from the fish itself—is such as to permit a steady melting throughout the voyage. It seems clear that, to preserve good external appearance the surface of the fish should remain moist. This is another reason for mixing ice well with the fish and for specifying that mechanical refrigeration should be operated so that the lower limit of air temperature anywhere in the

hold is 33°F. rather than, 31.5°F., the freezing point of the fish.

Mechanical refrigeration by itself is certainly not a satisfactory method of chilling fish, and the only possible alternative to the use of ice seems to be stowage in chilled sea water.

In bulk stowage of fish and ice, the shelves should be placed at vertical intervals of not more than 18 to 30 in. The space between shelves should be filled completely with fish and ice, but care should be taken that the fish is not subject to the weight of the shelf above. In other words, the shelves should be leaning on the rest-angles or battens.

Some thought is being given to new methods of storage e.g., large containers, which would be filled at sea with fish and ice, and lifted from the hold at the port. Besides saving labor in discharging, this would avoid the damage of the fish that occurs as the result of using forks, ice shovels and throwing baskets into the hold. These new methods of stowage might require larger hatch openings, and even in the biggest trawlers a single continuous hatch. The adoption of the submarine manhole within the hatch proper for success at sea would seem to make this feasible.

Total Amount of Ice Needed

Requirements of total ice to total catch (100 tons in the medium-sized Canadian trawlers considered) range from 1:1.5 for an uninsulated hold with wooden linings and boards poorly preserved to 1:3.0 for an insulated, wholly refrigerated metal surfaced hold.

In British practice, vessels of 165 to 185 ft. making distant-water trips of 20 days on an average, take to sea about 90 to 110 tons of ice for catches which range from 75 to 200 tons—the average in 1956 about 110 tons. Of the ice loaded, perhaps 70 to 80 tons is used for an average catch. These quantities are ample to meet the exigencies of adequate temperature control, and generally this seems to be satisfactorily achieved. The temperature of distant-water fish (mainly cod) at landing ranges from 31° to 42°F.

Contact with Hold Walls

Fish can be contaminated not only from contact with the trawler's ice but also from direct contact with dirty shelves, walls and linings. Most of these, however, are still wooden and shortly after being painted, varnished with shellac or coated with various surface sealers, become porous and water-sodden and harbor beneath the surface multitudes of bacteria. It is generally agreed that it is so far impossible in any simple, practicable manner to sterilize such wooden fittings.

As much ice by weight as 22 percent of the total catch is suggested in the case of holds with poorly preserved wooden linings and boards, and about 8 percent when the holds are metal-lined, to make certain that the fish does not come into contact with the walls of the pen.

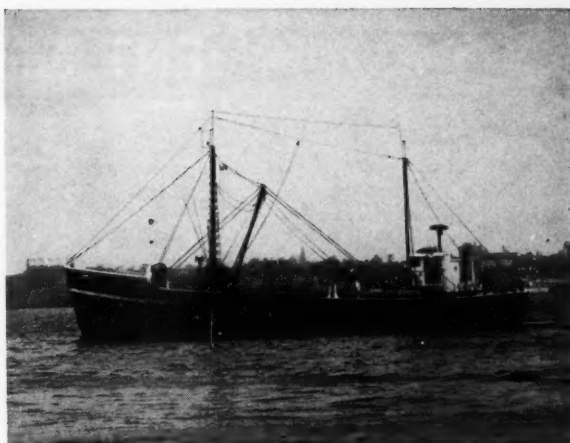
Metal-lined holds and metal shelves can be much more effectively cleaned and sterilized than wood and, of course, do not carry sub-surface infections. On the common-sense ground, however, of maintaining a proper regard for care throughout the whole treatment of a foodstuff, good cleaning of fish holds and their fittings to prevent the accumulation of gross dirt must be strongly recommended.

As it is easier to clean portable boards than fixtures, vertical pen divisions should, wherever possible, be built up from boards and stanchions, the fixed wings remaining only at the sides of the ship, where they are necessary to avoid the use of boards of special sizes and shapes. In the same way it is better to have separate, portable rest-angles to carry the horizontal shelves, rather than rest-angles fixed to stanchions or battens fixed to special boards. These features also make it easier to work in the fishroom both when stowing the fish and discharging it.

More power, a 5-inch Tobin Bronze Shaft, mean faster trips, better hauls for "Laura A"

The New Bedford scalloper, "Laura A," now works the Georges Bank with trips running five or six days. The average trip for a scalloper in this service is 10 days. The reason for "Laura A's" better record is a major renovation which included the replacement of her old 320-hp diesel with a new 550-hp unit. To transmit this higher power dependably, she has a new 5-inch diameter by 10' 11" Tobin Bronze Shaft.

TOBIN BRONZE® Shafting has proved itself through its dependable performance on thousands and thousands of pleasure boats, fishing and other commercial craft. It is this record of dependability that has made it first choice of boatbuilders and boatowners.



The 98-foot scalloper "Laura A," 155 gross tons, was modernized and repowered at the yards of Hathaway Machinery Company, Fairhaven, Massachusetts.

Anaconda propeller shafting is available through leading marine supply distributors. For detailed information, see your distributor or write: The American Brass Company, Ansonia Division, Ansonia, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

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Like many other owners, Capt. Norton came back to Gamage when he wanted a new boat. His last vessel, the "Edgartown" was built at our yard in 1955.

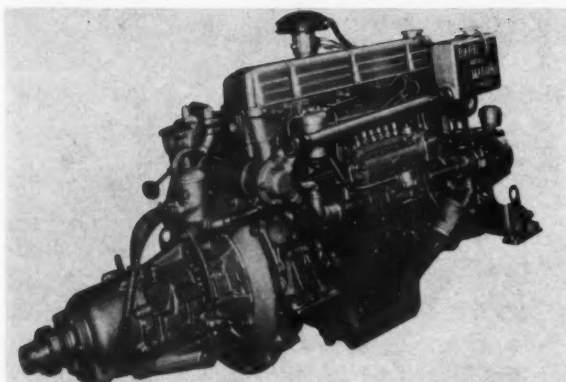


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EQUIPMENT and SUPPLY NEWS



One of the new Barr Marine Diesel engines designed for boats up to 60'. The 6-cylinder model develops 100 hp. at 2250 rpm. and the 4-cylinder model develops 60 hp. at 2250 rpm.

New Barr Marine Diesel Engines

Barr Marine Products Co., 2700 E. Castor Ave., Philadelphia 34, Penn., announces the availability of two new Diesel engines suitable for commercial boats up to 60 feet in length. Both engines utilize the basic Ford Motor Company Diesel block, with all the necessary marine adaptations installed by Barr at the factory.

The 6-cylinder model develops 100 hp. at 2250 rpm. from its 330 cu. in. displacement and 3.94" bore x 4.52 stroke. It weighs 1200 pounds complete with reduction gear.

The 4-cylinder model has the same bore and stroke, with 220 cu. in. displacement and develops 60 hp. at 2250 rpm. It weighs 800 pounds complete with reduction gear.

Both models come complete with heat exchanger cooling system, fresh water cooled exhaust manifold, fresh water and sea water pumps, a wide selection of hydraulic and manual reverse and reduction gears and front-mounted power take-offs.

Barr Marine Products has announced the appointment of the first exclusive franchised distributors of its new line of marine Diesels. L. M. Goff Company, Providence, R. I. is the distributor for Connecticut, Rhode Island, Massachusetts and New Hampshire. "Doc" Freeman's Seattle Marine Exchange will be distributor for the state of Washington.

Both firms initially will sell the engines directly to fleet and commercial boat operators, but expect to set up dealerships through marine dealers and boatyards in their territories. Both distributors already have the new 6-cylinder Diesels in stock and expect the 4-cylinder models by the first of the year.

New American LaFrance Fire Extinguisher

American LaFrance, Consumer Products Div., Elmira, N. Y., has announced a new 5-pound Protexall dry chemical fire extinguisher that has four times the fire-killing power of the present Protexall. Designed for large boats, the Protexall 5 is approved by the U. S. Coast Guard and has an excellent Underwriters Laboratories rating.

The extinguisher may be used at a distance of 8 to 10 feet and requires no recharging unless used. After use, it may be recharged at many marinas and at all American LaFrance recharge deposits. Protexall's firekilling powder is harmless to people and foods and is designed to smother fires caused by short circuits and electrical wiring, spilled gasoline, malfunctioning cook stoves, etc. The powder is easily wiped up with a damp cloth.

One of the first dry chemical extinguishers to receive Coast Guard approval, Protexall is equipped with a snap-open clamp bracket and features squeeze-handle operation.

New Sales Set-up for Kelvin Hughes Products

As of January 1960, Kelvin & Hughes America Corp., Box 1951, Annapolis, Maryland, will become sole United States distributor for the complete line of Kelvin Hughes navigation and fish detection equipment.

Bludworth Marine will continue to service its present accounts with Kelvin Hughes echo sounders and radar until March 1, 1960.

Kelvin & Hughes America Corp. is establishing dealers throughout the country who will provide sales and service facilities. Benton Hall Schaub is president of the concern, and Presley Taylor is manager of the marine division.

Kelvin Hughes marine products include marine radar, White Line echo sounders, Kingfishers, Junior Kingfishers, Fishermen's ascid, small boat ascid, complete range of compasses, sextants, mechanical and hand sounding machines, ships' logs, chart instruments, marine clocks, stress finders, stability and trim indicators, hydrographic and oceanographic survey equipment, small boat speedometers, hand and electric tachometers, rudder angle gauge indicators, D. C. centre zero revolution indicators, gauges, engine service counters, engine hour meters, and engine protection equipment.

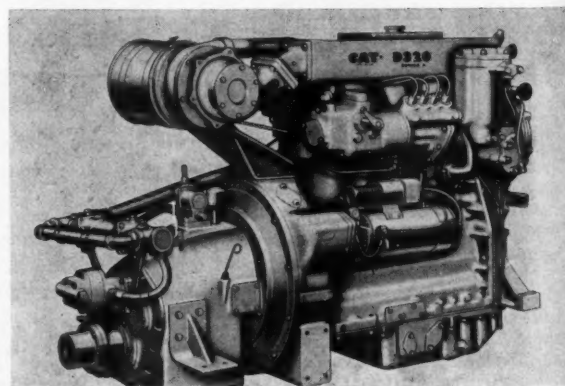
Caterpillar Introduces Small Diesel

An all new lightweight compact Diesel engine has been introduced by Caterpillar Tractor Co., Peoria, Ill. Called the D320, the four-cylinder, four-cycle valve-in-head engine is turbocharged and aftercooled for greater efficiency and fuel economy.

Developing 130 hp. at 2400 rpm., the D320 is designed to power craft in the 23-foot class and above. Bore and stroke are 4" x 5", and it has a 252 cubic inch displacement.

Dry weight of the basic engine is 1275 pounds. Two hydraulically-actuated Caterpillar Marine Gear units are available with a wide variety of gear ratios for either left or right hand propellers. Ratios range from 1:1 to 4:1. The units are fully reversible, giving complete power transmission in either direction.

Compact size, the new engine-gear package measures about 56" long, 28" wide, and 38" high. The pre-combustion chamber design allows complete combustion of fuel, from low idle to full load. The simplified design of the Caterpillar fuel system requires no operating adjustments. Electric 12-volt starting with charging generator is standard equipment. A 32-volt electric starting system or hydraulic motor starting are also available.



New lightweight, compact D320 Caterpillar Diesel. The 4-cylinder, 4-cycle engine is turbocharged and aftercooled for fuel economy.

New Compact Paragon Hydraulic Gear

Paragon Gear Works, Inc., 628 Cushman St., Taunton, Mass. has announced a lighter, more compact hydraulic marine transmission, designated as the "H-A" series, and available with capacities up to 300 hp.

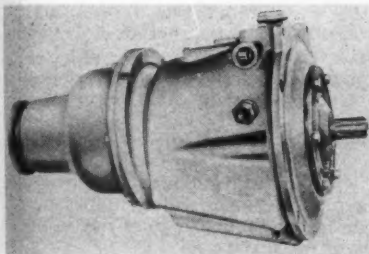
The new Paragon design has "forward" operation, accomplished through a "locked-up clutch", to leave gear train unloaded and to avoid back-lash and rattle. "Cushion clutch" action is included for positive and smooth shifting, while full power is delivered in both "forward" and "reverse" operation.

Paragon claims an increase in horsepower capacity, and a 30% saving in weight and operating parts through the use of light-weight alloys and a space-saving arrangement.

Also being furnished are Paragon reduction gears for the H-A series which will continue to offer the advantage of offset design. This Paragon feature facilitates installations above or below engine centerline permitting ease of installation in confined quarters.

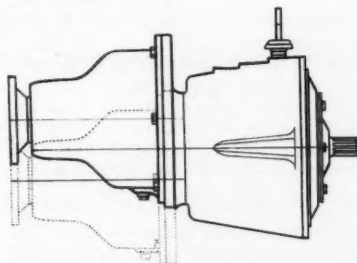
Ratios available are 1.5:1, 2:1, 2.5:1 and 3:1, and they can be supplied for right and left-hand turning engines in matched pairs with ratio conversion possible without changing the entire transmission.

"H-A" model Paragon transmissions are designed to operate at cooler temperatures because antifriction bear-



H-A Series model Paragon marine transmission, which claims an increase of horsepower capacity and a 30 percent weight saving.

Illustration of Paragon offset feature found in the new H-A series.



ings are used throughout, and regular, commercially available oil coolers can be used.

The hydraulic oil pump in the H-A models, an exclusive design covered by Paragon patents, will be continued. The pump provides instant flexible response through push-pull controls perfected by Paragon. Control valve for the push-pull cable attachment is conveniently located to facilitate installation.

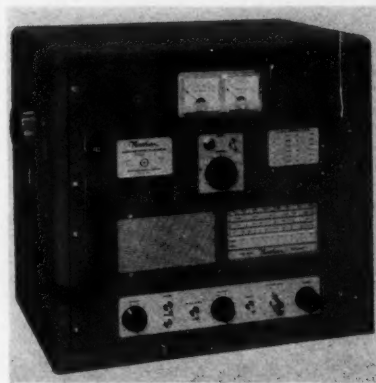
New Linen Thread California Distribution

The Linen Thread Co., Inc., Blue Mountain, Ala., has announced that sales of the company's commercial fishing products are to go on a selective distribution basis in California through the following companies:

Cincotta Bros., San Francisco and Monterey; A. D'Acquisto & Son, Monterey; Marine Hardware Co., Inc., San Pedro and Terminal Island; Nuttal-Styris Co., San Diego; San Diego Marine Hardware, Inc., San Diego; and Seaside Supply Stores, Inc., San Pedro.

Products include Gold Medal, Barbour's, Paul and Adams Best netting brands. The company also manufactures Nyak netting and seine twine. Knox's knotless netting and Netset Preservative. It also developed and is exclusive American sales agent for Arkon plastic floats.

The new Northern radiotelephone, using Model N529 transmitter and Model N620 receiver, is FCC accepted and has 11 channels.



Northern Radiotelephones on East Coast

Northern Radiotelephones now are available on the East Coast through dealers being appointed by Northern Radio Co., 314 Bell St., Seattle 1, Wash. The new dealers include Louis Posner Marine Radio Equipment, Inc., 265 Northern Ave., Boston, and Smith-Meeker Engineering Co., 157 Chambers St., New York.

Northern radio equipment has been marketed on the Pacific Coast, including Alaska, for 30 years, where it has provided ship-to-shore and ship-to-ship service, as well as communications between salmon canneries and with the cannery tenders.

Among the units made by Northern is the Model N529 Transmitter with Model N620 Communications Receiver. It is FCC type-accepted, has 11 fixed channels and 2 to 18 megacycles frequency range. The set has 150-watt input, 95-watt output and is available for the 32-115 volt DC or 115 volt AC power supply.

Northern also has a Model N518-S, 5-channel Transmitter, with 85-watt input and 50-watt output, which is available with the same receiver. The Northern receiver has no motor or vibrator, thus providing good sensitivity with noise-free operation. The transmitting dynamotor operates only while the set is being used to transmit. The equipment is heavily constructed, with all components designed for durability.

Hathaway Machinery Adds New York, New Jersey Territory for Waukesha

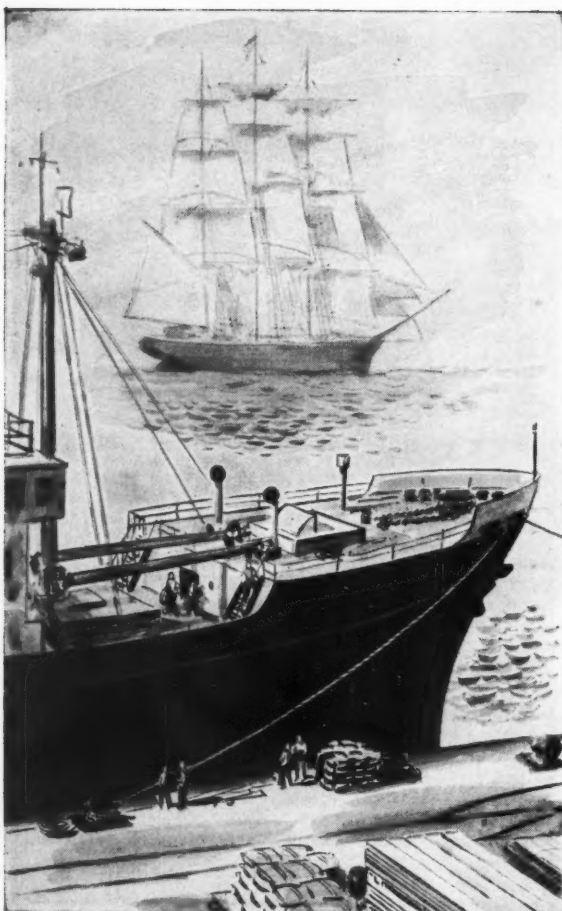
Waukesha Diesel sales territory for Hathaway Machinery Co., Inc. has been expanded to include the marine industries of New York Harbor, Hudson River, Long Island and the State of New Jersey to Cape May. Other territory already serviced by Hathaway includes the entire New England States area and the Canadian Maritime Provinces of New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland. In addition to Diesel propulsion engines, Hathaway now is handling Waukesha Diesel power units for auxiliary use.

With headquarters at Fairhaven, Mass., Hathaway Machinery carries a full stock of Waukesha parts, maintains complete service facilities, and handles engine accessories, under-water equipment and deck gear.

James B. Bradley has joined the Hathaway sales force for Waukesha engines. He will work with Leonard Motta, Hathaway sales engineer. Bradley has been with the Company since 1935 and has had charge of its machine shop since 1947.

Enterprise Has New Northeast Manager

J. E. Barthmaier has been appointed Northeast district manager of Enterprise Engine & Machinery Co. Barthmaier will have headquarters in New York City and will cover the New England States, Halifax, Montreal, Toronto, Newfoundland and the St. Lawrence Seaway—including Lake Erie.



NEW BEDFORD ROPE ... first on the Clippers, first choice on modern vessels.

Fishermen and Fleet Owners know that New Bedford Rope is:

- Tough and strong.
- Laid right for easy handling.
- Treated for protection against moisture and dry rot.
- Lubricated to reduce internal friction.

New Bedford Rope is stocked in all major ports.



**NEW BEDFORD
CORDAGE COMPANY**
NEW BEDFORD, MASSACHUSETTS
Serving the Maritime Industry Since 1842

Trawl Door Spreading Influences Catch

(Continued from page 10)

to decrease as dragging time increases because of the growing size of the catch, although takes made during the Bering Sea tests may have been too small to influence the trawls actions.

When depth is increased and the cable-length, water ratio and vessel speed are constant during trawling, the only factor affected by the operation is the weight of the cable.

Trawl-door, Ocean Floor Contact

When the water-depth is varied and the cable-length water-depth ratio is unchanged during dragging, the direction of the cable's pull on the trawl door is changed, in effect, from an upward direction to a horizontal direction.

The pull on a trawl door is forward in shallow waters, but moves steadily inward toward the mid-line as water depth is increased. The warp is pulled up and forward and the trawl door is pulled outward and forward when a small cable-length, water-depth ratio is used in shallow water.

A forward tilt of the trawl door reduces the contact of the door with the ocean bottom and reduces the spread of the trawl doors.

If a shallow water cable-length, water-depth ratio is used in deep water, the warp pulls forward, resulting in a minimum amount of tilt and a better contact of the door with the ocean bottom.

The effect of vessel-speed on trawl-door spread is influenced by the action of the towing cable, because the force of water against the cable increases as the speed of the vessel rises, causing the warp to pull upward on the doors and decrease the amount of spread.

If the cable-length, water-depth ratio is increased while the vessel speed is increased in deep water, the shape of the towing cable is changed although it does not noticeably affect the position of the trawl doors.

Louisiana Shrimping Comeback

(Continued from page 11)

they spawn earlier than white shrimp. Small brown shrimp enter inside waters earlier in the spring and later in the fall than similar white young.

Background of Commercial Shrimping

It was not until around 1870, that people actually tried to make a living by catching and selling shrimp. The nation's largest fishing industry started with a Chinese immigrant named Lee Yim who settled in Louisiana. Remembering shrimp from his youth, Lee Yim built the first shrimp drying platform in the United States, Viosca said.

The shrimp were cooked, then spread out in thin layers on the drying platform, and left for three days in the sun. Then they were raked into a circular pile for removal of heads and shells by "shrimp dancing"—men in wooden shoes tramping on the pile. Heads and shells were broken up while the dried out meats remained intact. Broken heads and hulls were screened out and marketed as "shrimp bran," which because of its high protein content, is still used for the feeding of livestock.

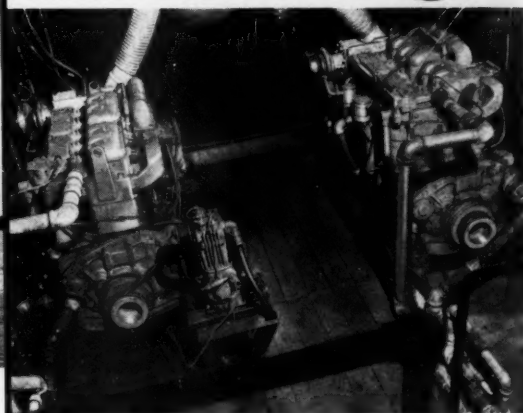
Shrimp drying became a profitable industry, and shrimp dancing an important occupation. But new methods of preparing and preserving shrimp for human consumption gradually reduced the demand for dried shrimp. Today only a small amount of the catch is dried, almost all of it for exportation to Hawaii, China and the Philippines. There is still a strong domestic market for shrimp bran, although shrimp dancing has given way to less colorful but more sanitary forms of drying and shucking, Viosca went on.

In the early days of Louisiana, boats ventured no further than the shallow bay areas where the shrimp were

"Our new Allis-Chalmers 21000's are really work horses,"



says Captain Edward Rice, skipper of the 115-ft M/V "Alabama" of Pascagoula, Mississippi. "I find they are cheaper to operate — less fuel with plenty of power — a hard combination to beat. I've been fishing for more than 20 years now, and these Allis-Chalmers diesels are my choice of them all."



Two 21000 turbocharged marine diesels driving twin 52" by 35", 3-blade screws through 3.8:1 reduction gears. These engines are rated at 320 shp @ 2000 rpm for light duty and 230 shp @ 1800 rpm for continuous heavy duty.

ALLIS-CHALMERS



POWER FOR A GROWING WORLD

The "Alabama" was repowered to increase performance and reduce operating cost — and the A-C 21000 accomplishes both goals, according to James E. McGrath, manager of Wallace M. Quinn Fisheries, Pascagoula, Mississippi, owner. "We are well satisfied with the performance and were indeed surprised at the low fuel consumption. We anticipate using these Allis-Chalmers engines in our future vessels."

If you want proved performance for your boats, contact your Allis-Chalmers marine engine dealer or write Allis-Chalmers, Milwaukee 1, Wisconsin.

BM-37

caught by means of casting nets or seines. Transferred from boat to wagon, the catch was packed with wet sawdust or moss for protection and ferried across the Mississippi to New Orleans. At that time the market stalls in the old French Quarter were the only retail outlets for fresh shrimp.

Continuing, Viosca said the otter trawl was first tried for Louisiana shrimping in 1915 and its use increased rapidly. With the advent of power boats and the development of sea going trawlers, the shrimp grounds were greatly extended, and both drying and canning industries grew quickly. The number of trawlers passed the thousand mark in 1932 and usually exceeded three thousand after 1940. Today many of the boats are of the deep sea type and fish entirely in the open Gulf. Seventy-foot shrimp trawlers with 300 hp. engines are commonplace. Their cable rigs are operated from power hoists that haul up to 100-foot nets.

Navigation aids such as radar, ship-to-shore radio, depth sounders, and other gear are now in the reach of not only the big operators but also the small independents, Viosca remarked. Now the small boats may venture far from shore with comparative safety and are no longer relegated to their immediate home waters and the use of shoreline landmarks.

Despite the improvements in boats and gear and the discovery of new shrimp areas, it was not until after the second world war that shrimping really came into its own. The thing which caused the increase in popularity was the frozen food industry. No longer was the shrimp a highly perishable item that had only ten to 12 days in which to get to market. Now it could be frozen and kept indefinitely. More leisurely, better organized marketing methods became possible, and by 1949 shrimp was the best selling seafood in the country.

Due to the development of refrigeration, new methods of harvesting, canning, packing, new preservation techniques, and rapid transportation, Louisiana's shrimp are

now reaching ever expanding markets. The increased demand is calling upon the ingenuity of gear developers, exploratory fishing, and technical researchers, said Viosca. The latter are under the Louisiana Wild Life and Fisheries Commission which works toward this end in cooperation with other Governmental agencies.

During the past several years, catches of the two native grooved shrimp, brown and pink, have increased considerably. This is partly the result of night trawling and partly due to an extension of the fishing grounds with an increased knowledge of their habits, Viosca said.

Found in the Northern Gulf due to operations of the U. S. Fish and Wildlife Service vessel *Oregon* are tasty, all-red, deep-water shrimp that appear to have commercial possibilities, as do the less shrimp-like appearing "rock-shrimp", he concluded.

"Ike and Jens" Able Scallop

(continued from page 9)

stuffing box. The bronze rudder port was manufactured by J. F. Hodgkins Co.

The Deseco auxiliary power unit, furnished by Diesel Engine Sales & Engineering Corp., Boston, comprises a Lister FR2 Diesel, driving a 7½ kw., 115/140 volt, 1800 rpm. Kurz & Root generator, Quincy air compressor and 1¼" bronze Jabsco pump for bilge and deck service. The main engine operates a 10 kw. "Safety" generator, and storage batteries are 112-volt, Type 8-HHG-21 Surrette, placed on a double shelf. The switchboard and electrical panels were designed and installed by the shipyard.

The engine room provides good accessibility to all equipment. A ½" copper fresh water line extends from the Fairbanks-Morse pressure system in the fo'c'sle to the engine room, to provide fresh water for the engine and for general use. An electric-driven, automatic Quincy air compressor keeps constant air pressure. There are two

FLOAT TYPE COMPASS



with EXCEPTIONAL FEATURES

Service-proved,
precision instrument
for accurate
navigation of
coastal, harbor
and inland waters

- Compass card has attached air chamber by which almost entire card weight is supported by buoyancy of the liquid. Friction and wear on pivot reduced to a minimum; compass sensitivity increased.
- Ritchie patented Fascicular Magnetic Needle. Gives a much higher charge to retain unimpaired magnetism indefinitely.
- Sapphire jewels; pivots of special alloy of exceptional hardness and fineness, practically unaffected by years of use.
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No. 58-6" Card; No. 54-7" Card. Under
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This float type compass is but one of many Ritchie precision-made compasses, including an ideal model for your boat. Ask your marine dealer or write us for catalog.

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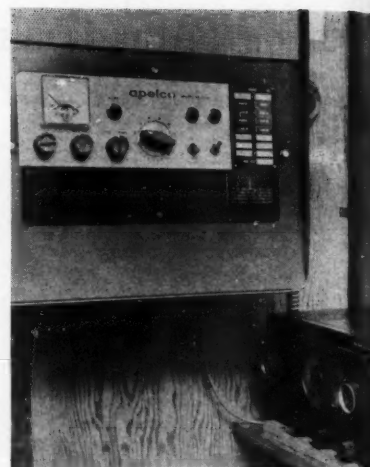
CHESAPEAKE BAY and
ATLANTIC OCEAN
FRESH CAUGHT FISH

all size shipments---rough, dressed, filleted
ocean and bay seasonal varieties

ISAAC FASS, inc.

PORTSMOUTH, VA. Call EX 7-3463

150-watt Apelco radiotelephone and Hallicrafters receiver aboard the "Ike and Jens" of New Bedford, Mass.



electric-driven, 2" Viking pumps which can be used interchangeably for bilge and wash-down service. The vessel carries 5,000 gallons of fuel in four welded steel tanks. Texaco fuel and lubricants are supplied by D. N. Kelley & Son, Fairhaven, Mass.

The fo'c'sle accommodates 9 men, and has a wash stand with running water for the crew. The galley has a stainless steel sink and #450 Shipmate oil burning range. The refrigerator is insulated with Fiberglas and sheathed with stainless steel, and two galvanized fresh water tanks under the fo'c'sle floor carry 600 gallons.

The captain's quarters, with two berths, are in a state-room aft of the wheel house, and there are two bunks in the after cabin. The toilet is located in the after house. After quarters are heated by a #30 Shipmate oil-fired hot water boiler. Stainless steel stove pipe is used for both the heating boiler and the galley range. The vessel is equipped with two 10 lb. and two 5 lb. CO-2 fire extinguishers, and a 1 qt. liquid type extinguisher, all of Fyr-Fyter make.

The foremast on the *Ike and Jens* is stepped on deck, and fabricated from steel pipe which is 10" diameter at the base and 8" at the top. The scallop booms are of 4" pipe with 3/4" welded ladder sections. There is steel sheathing over the rail stanchions in the way of the scallop dredges, with four scuppers on each side. The scallop wash box is of stainless steel, and an Edson hand deck pump is provided. The winch and deck gear are of Hathaway make, and a 200-lb. Danforth anchor is carried.

Life saving equipment aboard the scalloper includes a 12-man Seafarer inflatable life raft in fiber glass stowage container, sold by Capt. A. J. Pedersen; one Pottle-built dory and the customary life jackets and life rings.

Pilot house equipment includes 150-watt Apelco radiotelephone and Model 107A, RCA radar, supplied by Marine Radio & Electric Co., Fairhaven; Raytheon Fathometer; Hallicrafters radio receiver; White 7" Constellation compass; Hathaway steering gear, and two loran sets furnished by Dahl Loran Service of New Bedford.

Gamage Building Three More Boats

Gamage has three more vessels under construction. A 72' combination dragger-scalloper is being built for Risdal & Anderson, Inc. (Capt. Magne Risdal) of New Bedford, Mass. She is of Albert Condon design, similar to the *North Sea* of New Bedford, and will be powered by a 12 V-71 General Motors Diesel with Twin Disc 4.15:1 reduction gear. Risdal owns the *Barbara* which is now quahogging.

An 80' scalloper, to be named *Prowler*, is being completed by Gamage for Capt. A. J. Pedersen of Portland, who operates the *Snoopy* out of New Bedford. Her power will be a D375 Caterpillar Diesel. Capt. John Gay of South Bristol, Me., is having Gamage build him a 44' dragger, to be powered by a 103 hp., 2400 rpm., Model MD67 Penta Diesel with variable pitch propeller.

BOAT CATCHES

For Month of November

Hailing fares. Figure after name indicates number of trips.

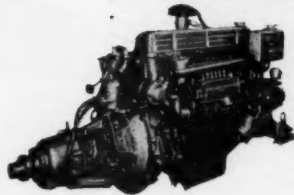
GLOUCESTER (Mass.)

Acme (9)	57,000	Manuel P. Domingoes (1)	128,000
American Eagle (7)	89,000	Margaret Marie (3)	11,500
Anna Guarino (6)	31,000	Marianna II (4)	22,500
Annie (1)	6,500	Mary Ann (8)	200,500
Anthony & Josephine (13)	96,500	Mary Rose (1)	52,000
Ave Maria (2)	7,500	Morning Star (8)	106,000
Baby Rose (1)	52,000	Nancy & Maria (9)	38,500
Bonaventure (1)	25,000	Natale III (5)	163,500
Cape Cod (11)	48,000	Ocean Spray (1)	25,000
Carlo & Vince (6)	96,500	Our Lady of Fatima (1)	40,000
Cigar Joe (8)	62,000	Our Lady of Tears (2)	2,500
Columbia (1)	10,000	Philip & Grace (1)	10,000
Dawn (8)	14,500	P. K. Hunt (2)	59,000
Doris F. Amero (4)	67,000	Regina Maria (2)	67,000
Eddie & Lulu M. (5)	12,000	Rhode Island (5)	187,500
Emily H. Brown (1)	150,000	Rose & Lucy (6)	103,000
Estrela (2)	330,000	Rosemarie (7)	187,000
Eva II (8)	17,500	Rose Mary (1)	37,000
Evelyn L. Brown (1)	230,000	Rosie & Gracie (4)	70,500
Falcon (5)	75,500	St. Anna Maria (12)	127,500
Flow (2)	310,000	St. Cabrini (7)	146,500
Frances R. (6)	112,000	St. John II (3)	5,500
Gaetano S. (1)	1,000	St. Joseph (2)	36,000
Giacoma (2)	3,000	St. Mary (11)	130,500
Gloucester (2)	44,000	St. Nicholas (1)	30,000
Golden Dawn (5)	15,500	St. Peter (3)	63,500
Holy Name (4)	58,500	St. Peter III (7)	139,000
Ida & Joseph (4)	126,000	St. Providence (10)	38,500
Immaculate Conception (6)	120,500	St. Rosalie (2)	43,000
Irma Virginia (4)	6,500	St. Stephen (3)	4,500
Jackie B. (6)	57,500	St. Teresa (5)	114,500
Jennie & Lucia (5)	46,000	St. Victoria (1)	35,000
Joseph S. Matos (1)	100,000	Salvatore & Grace (8)	164,500
Judith Lee Rose (2)	580,000	Sandra & Jean (7)	48,500
Kingfisher (2)	370,000	Santa Lucia (8)	35,000
Lady of the Rosary (5)	84,000	Sea Queen (2)	14,500
Linda B. (4)	28,500	Sebastiana C. (9)	237,000
Little Flower (9)	132,000	Serafina N. (7)	99,000
Magnolia (1)	190,000	Serafina II (6)	147,000
Malolo (2)	76,000	Sunlight (1)	1,000
		Theresa M. Boudreau (2)	390,000
		Tipsy Parson (3)	5,000
		Villanova (2)	400,000
		Vincie N. (4)	76,000
		Virginia Ann (5)	37,500
		Wild Duck (1)	7,500

BOSTON (Mass.)

Agatha (2)	64,700	M. C. Ballard (2)	57,100
Agatha & Patricia (2)	69,000	Medan (2)	109,600
Arlington (2)	209,500	Michigan (2)	189,500
Baby Rose (2)	89,600	Minnie (3)	291,700
Blue Waters (2)	71,900	Mother Frances (3)	84,000
Bonaventure (1)	30,500	Nautilus (2)	75,300
Bonnie (2)	172,300	New Star (3)	256,700
Buzz & Billy (3)	57,600	Notre Dame (3)	56,100
Cambridge (2)	267,500	Ohio (3)	154,800
Caracara (3)	100,000	Olympia La Rosa (3)	92,300
Carmen & Vince (3)	114,000	Pam Ann (2)	85,100
Charlotte M. (3)	102,700	Patty Jean (3)	252,000
Clipper (3)	97,200	Phantom (3)	241,200
Columbia (1)	25,600	Phillip & Grace (1)	67,400
Comet (2)	169,100	Plymouth (2)	136,300
Dolphin (3)	84,600	Puritan (2)	67,100
Eagle (2)	102,900	Racer (2)	165,600
Ethelena (3)	92,700	Red Jacket (2)	163,500
Flying Cloud (3)	341,200	Rosa B. (2)	143,500
Four (2)	55,800	Rosalie S. (1)	27,000
Grace & Salvatore (2)	78,300	Rosie (1)	15,400
Hazel B. (3)	97,900	St. Angelo (3)	73,200
Heroic (1)	50,300	St. Joseph (2)	75,600
Holy Family (2)	92,700	St. Marco (3)	87,100
Jane B. (2)	71,600	St. Nicholas (1)	51,200
J. B. Junior (2)	77,700	St. Victoria (1)	40,600
Joseph & Lucia (3)	131,400	Swallow (2)	91,900
Josephine P. II (3)	91,700	Terra Nova (1)	62,000
Katie D. (1)	13,100	Texas (2)	81,000
Lawrence Scola (1)	6,000	Thomas D. (3)	64,900
Leonard & Nancy (3)	86,300	Thomas Whalen (2)	124,600
Magellan (3)	65,800	Villanova (2)	41,900
Mary & Joan (2)	89,900	Weymouth (3)	144,200
Mary Rose (2)	89,700	Wild Duck (2)	68,000
		Wm. J. O'Brien (2)	148,600
		Winchester (3)	197,100
		Wisconsin (3)	347,700

BARR MARINE DIESELS



Dynamometer-tested
when fully assembled
to assure
peak performance
under all
operating conditions

- Low Initial Cost—from \$2068 complete
- Heat exchanger system standard on all models at no extra charge
- Backed by a firm with over 30 years experience in marine power

Rugged, dependable Ford Diesel block completely "marinized" by Barr. Prices start at \$2068 complete and ready to install in your boat including: heat exchanger, fresh water cooled exhaust manifold, fresh and sea water pumps and a wide selection of hydraulic or manual reverse and reduction gear.

Both 4 and 6 cyl. models are available with front end power take-off.

6-cylinder model develops 96 shaft h.p. @ 2250 r.p.m. on dynamometer with all accessories, weighs only 1200 lbs. including reverse gear. 4-cylinder model develops 40 shaft h.p. @ 2250 r.p.m. on dynamometer with all accessories, weighs 800 lbs. with reverse gear.



Send for complete specifications and prices

BARR MARINE PRODUCTS CO.

Diesel Division, 2714 E. Castor Ave., Phila. 34, Pa.

See These Engines in Booths D-254 and 255 at the N.Y. Boat Show

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Crowelon is made from reworked spun NYLON and DACRON to resist rot and abrasion, particularly in warm, Southern waters.

Lighter—Stronger—More Economical

Cable-Laid Sizes

#6 —1/4" Approx. 47 ft. to lb.

#9 —5/16" Approx. 41 ft. to lb.

#12—3/8" Approx. 35 ft. to lb.

Dealer openings available in South Atlantic, Gulf & Pacific areas



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Adventurer (3)	61,000	Major J. Casey (3)	58,500
Agda W. (2)	36,500	Malvina B. (1)	20,500
Althea (3)	62,600	Maria Julia (1)	20,000
Anastasia E. (1)	10,000	Marie & Katherine (3)	54,600
Angie & Irene (2)	34,400	Martha E. Murley (3)	47,700
Annie Louise (3)	28,900	Mary E. D'Eon (1)	21,500
Annie M. Jackson (3)	60,200	Mary J. Landry (2)	32,400
Barbara M. (3)	59,500	Mary Tapper (3)	62,500
Cap'n Bill II (3)	57,700	Midway (3)	81,000
Capt. Deebold (3)	52,000	Miriam A. (3)	67,400
Carl Henry (3)	84,500	Molly & Jane (3)	57,500
Catherine & Mary (3)	82,300	Nancy L. (2)	31,800
Charles E. Beckman (3)	39,100	North Sea (3)	59,800
Christina J. (2)	48,900	Olive M. Williams (1)	22,800
Christine & Dan (3)	60,300	Pauline H. (3)	157,500
Comber (2)	23,500	Phyllis J. (3)	37,500
Connie F. (2)	46,500	Roann (3)	31,000
Eugene H. (2)	60,500	Robert Joseph (2)	43,100
Falcon (2)	51,100	Roberta Anne (3)	68,600
Friendship (2)	33,500	Rush (3)	65,000
Gannet (3)	128,500	Sea Gold (3)	52,400
Glen & Maria (2)	43,900	Shannon (2)	31,700
Growler (2)	54,200	Sharon Louise (3)	75,500
Harmony (3)	61,300	Skip Jack (3)	80,000
Hope II (2)	48,700	Smilyn (3)	58,500
Invader (3)	73,000	Solveig J. (3)	81,500
Janet & Jean (3)	67,500	Sunbeam (3)	50,800
Joan & Ursula (3)	65,200	Susie O. Carver (1)	12,000
John C. Murley (3)	103,500	Teresa & Jean (3)	101,000
Julia DaCruz (2)	40,800	Two Brothers (2)	7,700
Katie D. (2)	74,000	Valiant Lady (3)	68,900
Libby (3)	74,200	Venture I (4)	101,100
Lorine III (2)	37,500	Viking (2)	54,500
Louis A. Thebaud (2)	37,000	Whaler (3)	60,500

Scallop Landings (Lbs.)

Abram H. (1)	11,200	Laura A. (3)	36,600
Aloha (3)	36,600	Lauren Fay (3)	24,800
Alpar (1)	11,200	Lillian B. (2)	23,400
Amelia (2)	22,400	Linus S. Eldridge (2)	22,400
Babe Sears (1)	10,800	Louise (2)	24,400
Baltic (3)	33,600	Lubenray (2)	21,200
Barbara & Gail (2)	21,400	Malene & Marie (2)	22,400
Bobby & Harvey (1)	3,500	Mary Ann (3)	33,600
Brant (2)	22,400	Mary J. Hayes (2)	22,400
Bright Star (3)	33,600	Moonlight (2)	21,700
Camden (3)	33,200	Nancy Jane (2)	15,700
Carol & Estelle (2)	21,700	Neptune (2)	22,400
Catherine B. (2)	22,400	New Bedford (2)	22,400
Catherine C. (2)	22,700	Newfoundland (1)	11,200
Charles S. Ashley (3)	34,600	Noreen (3)	33,600
Clipper (3)	33,600	Pearl Harbor (2)	22,400
Dartmouth (3)	35,600	Polaris (2)	22,400
Debbie Jo-Ann (2)	22,800	Porpoise (2)	21,400
Edgartown (3)	36,600	Richard Lance (2)	22,400
Eleanor & Elsie (2)	18,200	Ruth Lea (2)	22,400
Elizabeth N. (2)	22,200	Ruth Moses (2)	23,400
Fairhaven (3)	36,600	Sandra Jane (3)	36,600
Flamingo (2)	23,400	Sea Ranger (2)	21,200
Fleetwing (3)	36,600	Sippican (3)	34,500
Florence & Lee (3)	35,600	Snoopy (3)	36,600
Florence B. (3)	36,600	Stanley B. Butler (3)	36,600
Geraldine (3)	36,600	Stanley M. Fisher (3)	34,600
Hilda Garston (3)	35,600	Stephen R. (1)	6,700
Ike & Jens (1)	11,200	Toscin (2)	12,000
Jerry & Jimmy (1)	11,200	Ursula M. Norton (3)	36,600
John Michael (2)	22,400	Villa-Riall (3)	33,600
Josephine & Mary (3)	33,600	Vivian Fay (3)	35,600
Kingfisher (3)	33,600	Wamsutta (2)	22,400
		Whaling City (1)	10,200

WOODS HOLE (Mass.)

Arnold (3)	13,700	Madeline (2)	5,400
Bernice (2)	4,500	Marcia Mary (1)	600
Cap'n Bill III (3)	77,800	Minkette (3)	16,200
Curlow (3)	14,900	Papoose (3)	17,800
Gertrude D. (3)	30,500	Robert Joseph (1)	9,800
Jenny (2)	18,300	Southern Cross (3)	20,200
Kelbasam (1)	11,200	Three Bells (3)	18,800
Lynn (3)	18,400	Trina Lea (1)	1,800

SEATTLE (Halibut Fleet Fishery)

Addington (1)	23,800	Gloria II (2)	23,800
Agnes O. (1)	23,000	Kenn Falls (1)	30,300
Angeles (1)	25,500	Leviathan (1)	19,000
Anne (1)	26,600	Mermaid (1)	19,000
Arlice (2)	36,500	Nanna (1)	20,200
Bergen (1)	15,500	Oceanus (1)	10,900
Bernice (1)	17,000	Swift II (1)	9,800
Eureka (1)	1,500	Sylvia (1)	24,000

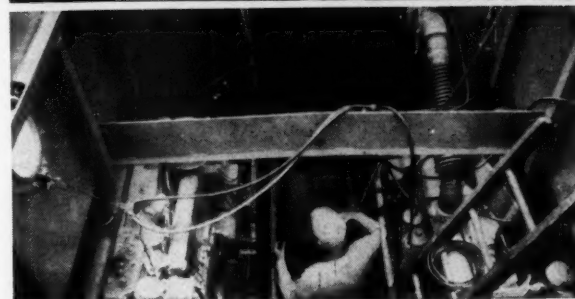
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Brighton (3)	353,000	Margaret Jean (1)	10,000
Elin B. (1)	38,000	Ocean (2)	550,000
Ethel B. (2)	3,000	Squall (2)	560,000
Flo (3)	129,000	Storm (2)	580,000
Helen Mae II (1)	43,000	Surf (1)	280,000
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Little Growler (3)	132,300	Wave (2)	520,000
Louise G. (2)	49,000		

Scallop Landings (Lbs.)

Pocahontas (1)	11,000
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PORTLAND (Me.)

Alice M. Doughy II (3)	36,000	Mascot (1)	1,200
Andarte (3)	166,000	North Sea (1)	85,000
Ariel (3)	1,700	Ocean Life (1)	290,000
Bois Bubert (1)	600	Quincy (2)	291,000
Dorchester (2)	249,000	St. George (2)	285,000
Dorothy & Ethel (2)	14,500	Theresa R. (2)	151,000
Dorothy & Ethel II (1)	8,000	Vagabond (3)	132,000
Elinor & Jean (3)	47,000	Vandal (2)	151,000
Gulf Stream (2)	320,000	Wawenock (1)	70,000
Lucille B. (1)	7,000	Winthrop (2)	121,000
Mary & Helen (4)	2,500		

Scallop Landings (Lbs.)

Francis L. MacPherson (1)	11,000
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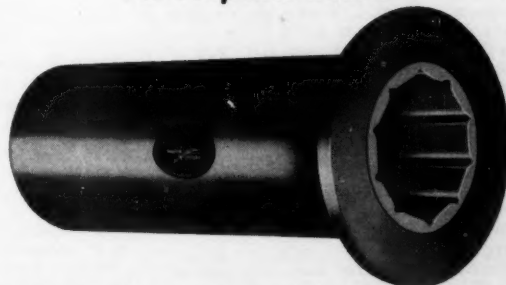
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Andrea G. (2)	66,300	Joseph S. Mattos (1)	33,500
Austin W. (2)	50,700	Lady of Good Voyage (3)	68,300
Edith L. Boudreau (4)	75,700	North Cape (1)	35,000
Evelina M. Goulart (3)	69,200	Santa Maria (3)	68,000
Golden Eagle (2)	67,900	Tina B. (4)	115,000

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Carol-Jack (3)	32,000	Muskegon (2)	21,000
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Enterprise (2)	22,000	Phyllis J. (2)	21,000
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Raytheon Manufacturing Co., 138 River St., Waltham 54, Mass.

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Hercules Motors Corp., 101 Eleventh St., S.E., Canton, Ohio

Hubbs Engine Co., 1168 Commonwealth Ave., Boston 34, Mass.

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Petter Engine Div., Orenda Industrial, Inc., 34-14 58th St., Woodside 77, N. Y.

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Hathaway Machinery Co., Inc., New Bedford, Mass.

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Hackensack Cable Corp., 110 Orchard St., Hackensack, N. J.

John A. Roebling's Sons Corp., Trenton 2, N. J.

Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corp., Palmer, Mass.

FOREIGN BAILINGS

NEW LOBSTER BOAT DESIGN is being built in Australia. The unusual type spiny lobster vessel is expected to do the work of two conventional vessels. The vessel is being built by the captain-owner for his own use.

The new vessel will be steered by two hemispherical metal shells around each propeller. By closing the shells the boat will go astern.

Instead of pulling lobster pots up over the side, specially designed gear will automatically pull the pots up over the sloping stern.

Hexagonal floats and thin steel cables will be used. A winch, recessed to take the six-sided floats, will wrap the cable neatly around the float as it is revolved.

The bases of the pots can be quickly detached, the spiny lobsters removed, and freshly-baited bases clipped on.

The double-skinned, steel, 41-foot boat, with twin Diesel engines, was designed jointly by a Fremantle marine designer and the owner. A 300-case freezing chamber will be added later.

A SMALL GILL-NET BOAT has been built for the Canadian Fraser River salmon fishery. The *Agnes T*, built by a Steveston, British Columbia, shipyard is 30 feet long with a beam of 8½-feet, has a new style wheelhouse which provides more comfort and visibility, and boasts automatic steering equipment with power drum and steering controls at the stern. The vessel is powered by a 140-hp. gas engine. For the past few years the move has been to larger gill-netters of about 35 feet in length.

THE WEST AFRICA COAST is the subject of intense fishing competition by Russia, Japan, and Norway.

Russia is planning to send a fleet of 200 boats and a "mother ship" to the area next year. The Japanese have been fishing there for the last five years and are planning to increase their effort, concentrating on the netting of sturgeon.

The Norwegians are conducting a scientific investigation of the whole West Coast, hoping to find winter-time employment for boats that fish off West Greenland and in the Arctic Ocean during the summer months.

West Africa's offshore shelf now appears to be one of the world's great fishing grounds. The sardine harvest has increased from 8,000 tons a year to 100,000 tons during the last 30 years.

The Japanese are now netting 5,000 tons of sturgeon a year. The Russians and Norwegians both hope to reap huge harvests of halibut, sturgeon, herring, sardines and flat fish, caught by trawling along the bottom.

NEW SHRIMP SPECIES have been found in deep water by Australian exploratory vessel. A species of shrimp not previously known in Australian waters was caught by the Government-chartered survey vessel *Challenge* in the Australian Broken Bay-Norah Head area in 145-155 fathoms.

The species was later identified by a marine biologist as "most certainly" of the royal-red genus. The shrimp has an average body length of 7½ inches, bright pink body, and tailfin marked with deep red.

Index to Advertisers

Allis-Chalmers	31	Lucian Q. Moffitt, Inc.	35
The American Brass Co.	27	New Bedford Cordage Co.	30
W. A. Augur, Inc.	38	Northern Radio Co.	25
Barr Marine Products Co.	33	H. O. Penn Machinery Co., Inc.	35
Columbian Rope Co.	1	Perkins Machinery Co. Inc.	23
Andrew Crowe & Sons, Inc.	34	E. S. Ritchie & Sons, Inc.	32
Isaac Fass, Inc.	32	John A. Roebling's Sons Corp.	23
Federal Propellers	24	Sesco, Inc.	38
Harvey F. Gamage, Shipbuilder ..	27	Socony Mobil Oil Co., Inc.	39
Gladding-Hearn Shipbuilding Corp.	38	Standard Oil Company of California	2
Glass Plastics Corp.	34, 38	Waukesha Motor Co.	6
Harbor Supply Oil Co., Inc.	4	Westerbeke Fishing Gear Co.	38
The Harris Co.	33	Western Trawl & Supply Co.	38
Hubbs Engine Co.	26	Wilfrid O. White & Sons, Inc.	34
Kelvin & Hughes America Corp.	40		

For The Finest Shrimp-Trawls—Any Type WESTERN TRAWL & SUPPLY COMPANY

HOME OF "WESTERN JIB" TRAWLS (U.S. PAT. 2,816,386)

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MARLON OR COTTON NETTING — ROCHESTER WIRE ROPE — NEW BEDFORD CORDAGE

Be on guard with CHANNELGARD

Maintain continuous listening watch on 2182 kc. Calling and Distress Channel even with your R/T tuned to another channel. Fits any R/T.

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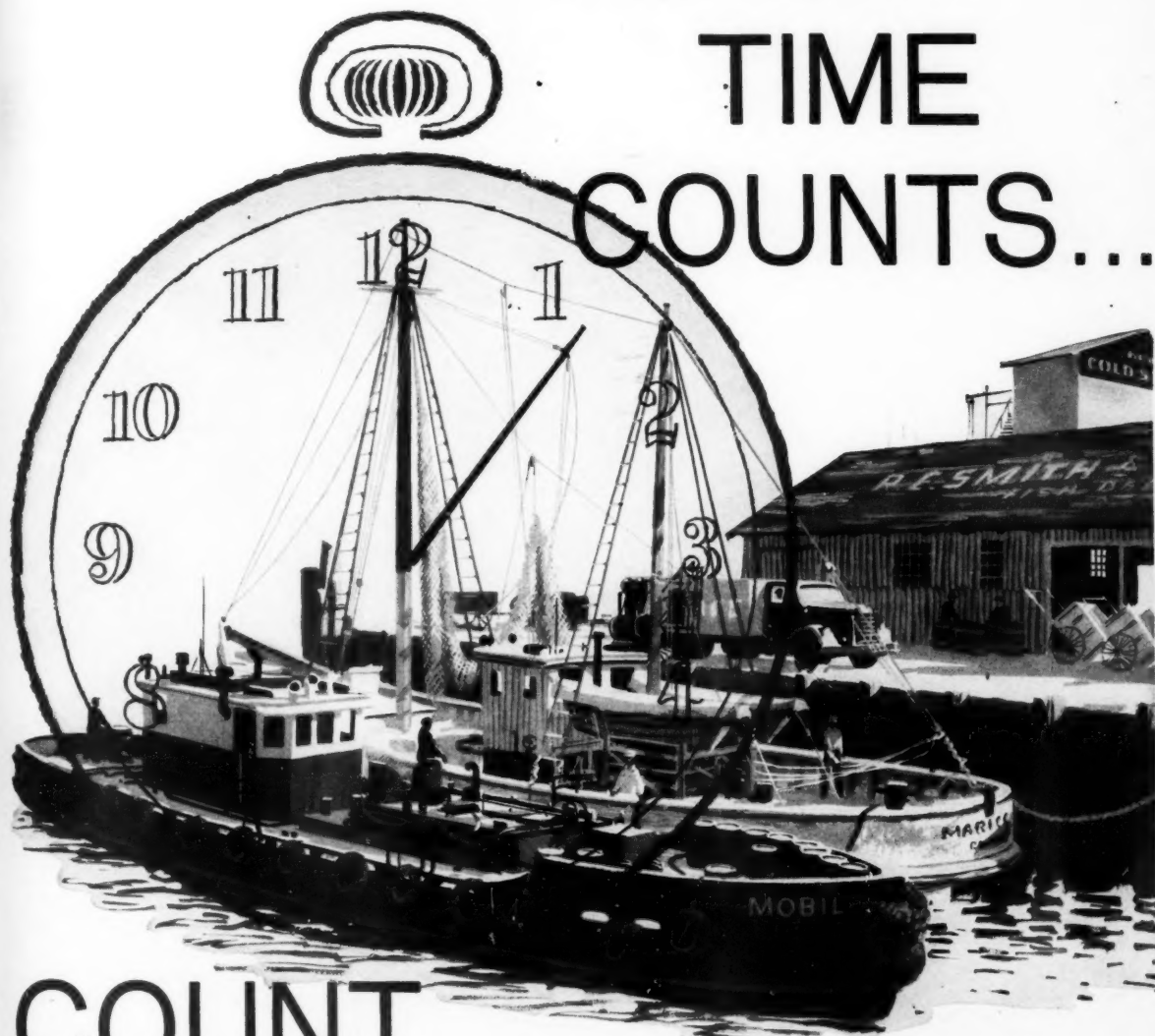
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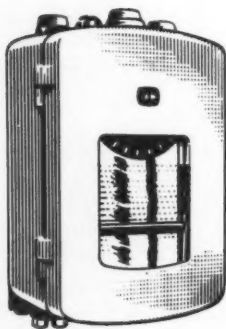
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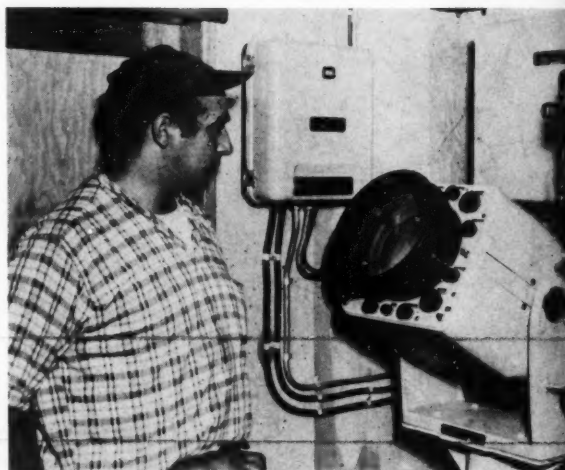
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